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IONOSPHERIC DATA IN JAPAN

FOR JANUARY 1966

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THE RADIO RESEARCH LABORATORIES

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KOKUBUNJI, TOKYO, JAPAN

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CONTENTS

SITE OF THE RADIO WAVE OBSERVATORIES

Ionospheric observation is carried out at the following four observatories in Japan.

	Latitude	Longitude	Site
Wakkanai	45°23.6′N.	141°41.1′E.	Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°08.2′E.	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Koganei-shi, Tokyo-to
Yamagawa	31°12.1′N.	130°37.1′E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

Solar radio emission and radio propagation conditions are observed at Hiraiso Radio Wave Observatory.

	Latitude	Longitude	Site
Hiraiso	36°22.0′N.	140°37.5′E.	Isozaki-machi, Nakaminato-shi, Ibaraki-ken

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

All symbols and terminology in the table of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction," 1961.

Terminology

f_0F2, f_0F1, f_0E — The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.

f_0E_s — The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.

f_bE_s — The lowest ordinary wave frequency at which the E_s layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.

f-min — The frequency below which no echoes are observed.

$M(3000)F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

$M(3000)F1$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.

$h'F2$ — The minimum virtual height, $h'F2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.

$h'F$ — The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present.

$h'E_s$ — The lowest virtual height of the trace used to give the f_0E_s.

$hpF2$ — The virtual height of the $F2$ layer measured on the ordinary

wave branch at a frequency equal to $0.834 f_0F2$.

ypF2 The semi-thickness of the *F2* layer deduced from a parabolic fit to the "nose" of the electron density distribution with height and based on the observed *h'f* trace. (The difference between *hpF2* and the virtual height at $0.969 f_0F2$).

a. Descriptive Letters

The following letters are entered after or used to replace a numerical value on the monthly tabulation sheets.

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example E_s.

B Measurement influenced by, or impossible because of, absorption in the vicinity of *f*-min.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Letters

The following letters are entered in the first column before a numerical

value on the monthly tabulation sheets.

D greater than.

E less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

O Extraordinary component characteristic deduced from the ordinary component. (Used for x- characteristics only.)

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-ionic component.

c. Description of Standard Types of E_s

The eight standard types of E_s are identified by corresponding lower case letters: *f, l, c, h, q, r, a, s.* These letters suggest the names flat, low, cusp, high, equatorial, retardation, auroral and slant, respectively. It is strongly emphasized that these names are not restrictive. The letter '*n*' is used to designate any E_s trace that does not correspond to any of the eight types.

f An E_s trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat E_s traces observed in the daytime are classified according to their virtual hight: *h* or *l*.

l A flat E_s trace at or below the normal *E* layer minimum virtual height in the day or below the night *E* layer minimum virtual height at night.

c An E_s trace showing a relatively symmetrical cusp at or below f_0E. This is usually continuous with the normal *E* trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.)

h An E_s trace showing a discontinuity in height with the normal *E* layer trace at or above f_0E. The cusp is not symmetrical, the low frequency end of the E_s trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

q An E_s trace which is diffuse and non-blanketing over a wide frequency range. The spread is most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)

r An E_s trace showing an increase in virtual height at the high frequency end similar to group retardation but which is non-blanketing over part or all of its frequency range. This is distinguished from the usual group retardation (as in the case of an occulting thick *E* layer) by the lack of group retardation in the *F* layer traces at corresponding frequencies and the lack of complete blanketing.

a An E_s having a well defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. These

sometimes extend over several hundred kilometers of virtual height.

s A diffuse E_s trace which rises steadily with frequency and usually emerges from another type E_s trace. The rising trace alone is classified as '*s*'; the horizontal trace is classified separately. At high latitudes the slant trace usually starts to rise from a horizontal E_s trace such as E_s-*l* or E_s-*f*, at frequencies which grealy exceed the E layer critical frequency, whereas at low latitudes it usually rises from E_s-*q*, E_s-*c*, or E_s-*h* at frequencies near the regular E critical frequency. Type *s* is never used to determine f_0E_s and $h'E_s$. The slant trace is sometimes observed to start at f_0E without echoes clearly identifiable as E_s echoes being seen.

n The designation '*n*' is used to denote an E_s trace which cannot be classified into one of the standard types. When a trace appears to be intermediate between any two classes a choice should be made whenever possible even if it is uncertain. '*n*' should be used sparingly.

d. Multiple Reflections from E_s

When the ionogram shows the presence of multiple reflections from E_s the number of traces seen should be recorded after the letter indicating the type.

B. SOLAR RADIO EMISSION

Solar radio observations are carried out on 200 and 500 Mc/s at Hiraiso Radio Wave Observatory.

Antennas are a broadside array of 6×4 doublets for 200 Mc/s and a parabolic reflector of 5 meter for 500 Mc/s, each having the total power receiver.

Observations are feasible almost from sunrise to sunset.

a. Time and Unit

The time is expressed as U.T.

The unit is 10^{-22} $W \cdot m^{-2} \cdot (c/s)^{-1}$ for both components of polarization.

b. Daily Data

Flux density

The three-hourly and daily mean values are given.

Variability

The three-hourly and daily mean values are given at 200 Mc/s only.

Variability is expressed in the following four grades:

0=Quiet or no burst,
1=A few bursts,
2=Many bursts,
3=Very many bursts.

The number of bursts exceeding the flux level is counted.

c. Distinctive Events

The phenomena are picked up on the following criteria:

1. Distinct from the prevailing kind of activity,
2. Correlated with other known solar phenomena,
3. Remarkable change-over from one situation to another.

Starting time and *Time of maximum* are given to nearest minute in general, but to nearest a tenth minute for short intense occurrences or clear commencements.

Duration is given in minutes and to nearest a tenth minute, if short or clear.

Descriptive type is denoted by the following symbols:

S =Simple rise and fall of intensity;
C =Complex variation of intensity,
C+=Prolonged broad-band enhancement of radiation, generally of spectral type IV;
F =Group of bursts: multiple peaks probably belonging to the same event, but separated by relatively short period of quietness;
RF=More or less irregular rise and fall of intensity, at metric or decimetric wavelengths;
e =Sudden beginning of burst with steep rise of intensity;
E =Steep rise of intensity of continuum background;
p.i.=post-burst increase;
onset storm=clear-cut beginning of a noise storm.

Peak intensity is the flux density of the highest peak reached during the occurrence, measured above the pre-burst level.

Mean intensity is the flux density averaged over the burst's duration, measured above the pre-burst level; therefore, multiplying the duration, the total energy of the occurrence can be estimated.

C. RADIO PROPAGATION CONDITIONS

a. Field Intensities of WWV and WWVH

Field intensity observations of WWV and WWVH transmitted from Washington D.C. and Hawaii, respectively, are carried out at Hiraiso Radio Wave Observatory. In order to avoid interferences with several standard frequency waves on the same frequency, the upper side-band of 440 c/s is picked up by the use of a narrow band pass filter of ± 40 c/s bandwidth.

Tabulated *field intensity* is the average of peak value of the incident upper side-band field intensity in dB above one microvolt per meter. The *duration* of observation is two minutes for WWV and three minutes for WWVH following the time indicated in universal time on the table.

Particulars of the transmitter and receiver are summarized in the following tables:

Transmitter

	WWV	WWVH
Location	Washington, D.C. Long. 76°51′ W Lat. 39°00′ N	Maui, Hawaii Long. 156°28′ W Lat. 20°46′ N
Power	3 kW for the upper side-band	0.5kW * for the upper side-band
Antenna	$\lambda/2$ vertical	$\lambda/2$ vertical
Distance	10050 km	6270 km

* Reduced from the carrier power of 2 kW with amplitude modulation of 100%.

Receiver

Antenna	4.5m vertical rod
Bandwidth	±40 c/s for the upper side-band
Calibration	each half hour

Descriptive symbols are as follows:

C: Measurement influenced by, or impossible because of, any non-propagational reasons.

S: Measurement influenced by, or impossible because of, interferences or atmospherics.

( ): Unaccurate measurement influenced by interferences, atmospherics, or non-propagational reasons.

<: Less than the following figure.

b. Radio Propagation Quality Figures

Radio propagation quality figures are usually expressed on the scale that ranges from one to five as follows:

1=very poor (very disturbed)
2=poor (disturbed)
3=rather poor (unstable)
4=normal
5=good

The tabulated circuits contain Hamburg (commercial circuit), WWV (frequencies 10, 15, 20Mc broadcast from Washington, D.C.), San Francisco (commercial circuit) and WWVH (frequencies 10, 15Mc broadcast from Hawaii), which are received at Hiraiso Radio Wave Observatory near Tokyo.

Warnings of radio propagation broadcast from JJY station are expressed in three grades:

N=normal
U=unstable
W=disturbed

The letter W expresses disturbed condition expected to be during the following 12 hours after issue. The letter U and N means also unstable or normal conditions, respectively.

Whole day radio quality indices are the averages of the 6-hourly indices of Hamburg WWV and S. F.

Start- and end-time of principal geomagnetic storms closely correlated to radio propagation conditions are tabulated from observations at Kakioka.

c. Sudden Ionospheric Disturbance (S. I. D.)

The data of short wave fade-out (SWF) are preparated from the field intensity records on following circuits received at Hiraiso. Characteristics of the phenomenon are classified as follows.

Circuits and Drop-out intensity

WS.....WWV 20 Mc, 15 Mc and 10 Mc (Washington)
SF.....Various commercial circuits (San Francisco)
HA.....WWVH 15 Mc and 10 Mc (Hawaii)
TO.....JJY 15 Mc and 10 Mc (Tokyo)
SH.....BPV 15 Mc and 10 Mc (Shanghai)
HB .....Various commercial circuits(Hamburg)

Start-time and Duration, Types and Importances are described from the data of a circuit whose Drop-out Intensity is underlined. Drop-out Intensities of 10 Mc ('), 15 Mc (none) and 20 Mc ('').

Start-times and Durations

Types

S : sudden drop-out and gradual recoverly
Slow: slow drop-out taking 5 to 15 minutes and gradual recoverly
G : gradual disturbances; fade irregular in both drop-out and recoverly

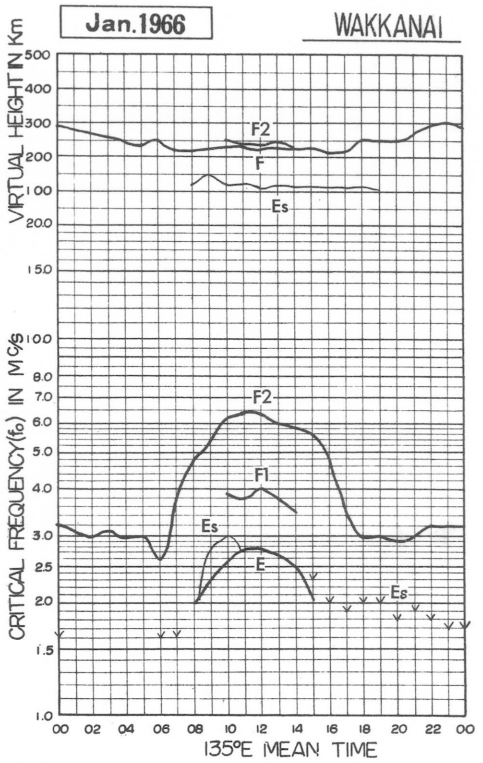
Importances

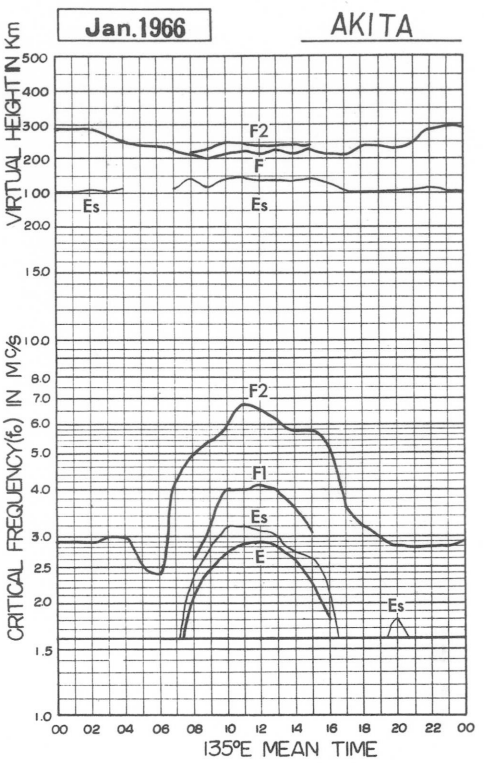
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1−	1	1+
2−	2	2+
3−	3	3+

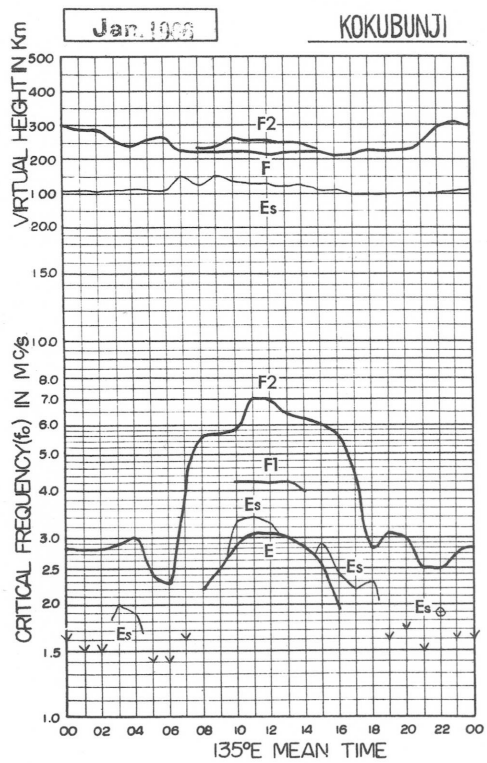
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

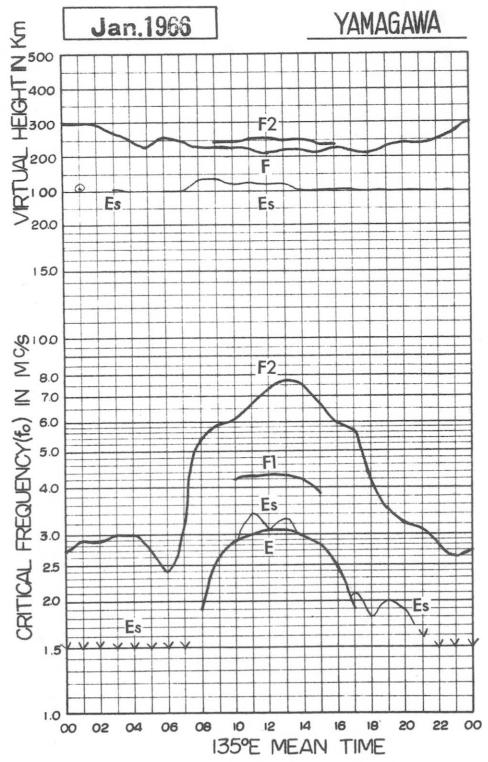
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: WAKKANAI

Jan. 1966

135° E Mean Time (G.M.T. +9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	032	031F	030	031	030	030	026	038	048	054	062	064	064	060	058	056	048	034	030	030	029	030	032	032
	CNT	16	17	15	17	14	15	18	22	24	26	27	27	28	28	27	27	28	28	26	27	23	23	22	20
	Q R	003	003	004	005	005	006	004	007	004	006	008	008	008	006	010	008	008	009	007	006	007	005	004	003
foF1	MED									270	340	390	380	400	380	350	300								
	CNT									1	2	9	20	16	12	7	1								
foE	MED					E	E		E	200	230	255	275	275	265	250	205	E							
	CNT					2	1		2	15	21	22	25	26	25	24	19	4							
foEs	MED	E017S	E012S	E	E	E	E	E016S	E016S	E020G	028	030	G	G	G	G	E023G	E020S	E019S	E020S	E020S	E018S	E019S	E018S	E017S
	CNT	27	28	25	25	24	24	23	24	24	23	27	26	28	28	27	27	28	28	28	27	28	27	28	28
	Q R							D007										D011	D007	D006	D006		D007		
f-min	MED	E016S	E	E	E	E	E	E016S	E015S	011	014	017	017	018	018	017	012	E016S	E014S	E018S	E016S	E018S	E017S	E017S	E016S
	CNT	27	28	25	25	24	24	23	24	24	23	27	26	28	28	27	27	28	28	28	27	28	27	28	28
M (3000) F2	MED	300	295F	300	305	320	335	340	350	365	355	350	355	360	350	355	355	360	330	330	335	325	310	300	300
	CNT	16	17	15	17	14	15	18	22	24	26	27	27	28	28	27	27	28	28	26	27	23	23	22	20
M (3000) F1	MED									410	410	400	400	400	395	400	405								
	CNT									1	2	9	20	16	12	7	1								
h'F2	MED									225	235	250	240	240	250	235	230								
	CNT									1	3	11	20	16	16	8	2								
h'F	MED	290	280	275	260	250	240	250	220	220	225	230	235	225	230	225	225	210	220	250	250	250	270	290	300
	CNT	28	28	25	25	24	24	23	24	24	25	26	28	28	28	27	27	27	27	26	26	26	27	28	28
h'Es	MED	110	105	110	110	110	110	110	110	120	150	120	125	110	120	115	115	110	110	110	105	105	105	105	100
	CNT	2	7	4	7	4	4	6	6	8	14	16	9	11	9	10	13	13	14	13	9	6	7	3	4
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: AKITA

Jan. 1966

135° E Mean Time (G.M.T. +9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	029	029	029	030	030	025	024	042	050	054	060	068	065	062	058	058	052	036	032	030	028	028	028	028
	CNT	26	27	24	24	28	29	30	31	31	30	30	30	30	30	30	30	30	30	31	30	29	28	25	24
	Q R	002	002	003	003	005	004	005	005	008	007	009	011	009	009	007	007	008	010	008	006	005	006	003	002
foF1	MED									260	320	400L	400L	410L	400L	360	310	220							
	CNT									11	12	14	17	17	12	9	6	1							
foE	MED								E	210	245	270	285	290	280	260	230	180							
	CNT								31	21	23	24	27	28	29	26	20	8							
foEs	MED	E	E	E	E	E	E	E	E	023	028	032	032	031	030	027	026	021	E	E	E	J018	E	E	E
	CNT	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	31	30	30	31	31	31
	Q R									004	005	006					003	005							
f-min	MED	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E
	CNT	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	31	30	30	31	31	31
M (3000) F2	MED	295	295	300	305	320	325	330	355	370	360	350	355	360	360	360	360	365	345	325	330	335	315	295	295
	CNT	26	27	24	24	28	29	30	31	31	30	30	30	30	30	30	30	30	30	31	30	29	28	25	24
M (3000) F1	MED									420	440	390L	380L	385L	390L	405	415	410							
	CNT									11	12	14	17	17	12	9	6	1							
h'F2	MED									220	235	250	250	245	245	245	240	215							
	CNT									14	27	29	30	30	30	29	18	3							
h'F	MED	290	290	290	270	255	245	245	225	215	200	210	220	215	225	215	230	215	210	240	240	235	250	290	295
	CNT	31	31	31	31	31	31	31	31	31	29	30	30	30	30	29	29	30	30	31	30	29	29	30	31
h'Es	MED	105	105	110	105	110	110	110	110	140	120	140	145	140	140	135	140	130	105	105	105	105	105	110	105
	CNT	8	12	10	7	9	4	4	9	24	24	23	20	16	16	16	24	22	12	14	15	17	11	15	9
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: KOKUBUNJI

Jan. 1966

135° E Mean Time (G.M.T.+9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	028	028	028	029	030	024	023	044	056	057	058	070	070	064	062	060	056	043	028	031	030	025	025	027
	CNT	30	31	31	31	30	28	31	31	31	31	31	31	30	30	30	31	30	30	30	31	31	31	31	31
	Q R	003	003	002	003	004	005	004	005	009	009	012	012	009	012	009	005	006	009	010	008	006	005	005	002
foF1	MED									280L	340L	420L	420L	420L	420L	400L	340L								
	CNT									2	4	6	22	18	14	7	2								
foE	MED								145	220	250	290	305	305	300	285	255	195							
	CNT								1	26	27	28	29	30	29	29	25	15							
foEs	MED	E016	E015	E015	020	019	E014	E014B	E016B	G	G	033	034	033	G	G	029	024	022	023	E016	E017	E015	019	E016
	CNT	31	31	31	31	31	31	31	31	31	31	28	31	30	30	30	31	30	31	31	31	31	31	31	31
	Q R	D010	D011	D012	D012	D010	D009		D003										D013	D013	D012	D011	D008	D010	D006
f-min	MED	014	013	013	012	011	013	014	014	015	015	016	016	016	016	016	015	015	014	E015S	013	012	012	013	013
	CNT	31	31	31	31	31	31	31	31	31	31	28	31	30	30	30	31	30	31	31	31	31	31	31	31
M (3000) F2	MED	285	290	285	305	320	295	305	345	355	355	340	340	345	345	350	345	360	345	325	325	330	310	290	280
	CNT	30	31	31	31	30	28	31	31	31	31	31	31	30	30	30	31	30	30	29	30	31	30	31	31
M (3000) F1	MED									430L	390L	360L	370L	370L	370L	370L	400L								
	CNT									2	4	6	22	18	14	7	2								
h'F2	MED									230	240	260	255	255	250	250	230	215							
	CNT									9	21	24	31	29	30	26	21	2							
h'F	MED	300	290	290	255	245	260	265	225	225	225	225	220	215	220	220	220	210	210	230	230	230	250	295	305
	CNT	31	31	31	31	31	30	31	31	31	31	31	31	30	30	30	31	31	31	30	30	31	30	30	31
h'Es	MED	110	110	105	110	110	110	110	150	125	150	135	130	130	120	125	110	110	100	100	100	100	100	100	105
	CNT	15	15	15	17	18	14	7	11	15	14	18	20	19	13	12	17	20	18	19	14	15	11	16	12
hpF2	MED	340	330	330	300	280	310	305	250	250	250	270	260	260	255	250	250	235	240	270	270	265	295	330	335
	CNT	30	31	31	31	30	28	30	31	31	31	30	31	30	29	30	31	30	30	28	29	31	29	30	31
ypF2	MED	050	050	050	045	050	045	045	045	045	045	045	045	045	045	045	045	045	050	050	050	050	045	050	045
	CNT	30	31	31	31	30	28	30	31	31	31	30	31	30	29	30	31	30	30	28	29	31	29	30	31

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: YAMAGAWA

Jan. 1966

135° E Mean Time (G.M.T.+9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	027	029	029	030	030S	027	024S	031S	054	059	061	066	073	077	075	067	060	057	042	035S	032	031	028S	026
	CNT	30	31	31	30	29	29	29	28	30	30	30	30	31	31	31	31	31	31	31	31	30	30	30	30
	Q R	004	002	004	003	002	005	006	002	006	008	015	014	018	012	013	012	007	008	011	012	008	007	005	006
foF1	MED									240		420L	430	430	430	420	390	320	200						
	CNT									1		8	23	24	28	23	9	3	1						
foE	MED									190	260	290	300	310	310	300	280	250	190						
	CNT									25	29	29	29	29	28	30	30	27	14						
foEs	MED	E015S	E015S	E015B	E015B	E015B	E015	E015S	E015S	G	G	029	034	031	033	G	G	G	021	018	020	019	E016S	E015S	E015S
	CNT	31	31	31	30	30	29	29	29	30	30	30	30	31	31	31	31	31	31	31	31	29	30	30	30
	Q R				D005			D004												D006	D007	D007	D004	D004	D002
f-min	MED	E015S	E015S	015	015	015	E015S	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
	CNT	31	31	31	30	30	29	29	29	30	30	30	30	31	31	31	31	31	31	31	31	29	30	30	30
M (3000) F2	MED	280	285	295	300	325S	315	290S	320S	350	355	345	330	340	340	340	355	350	355	345	320S	325	320	310S	290
	CNT	30	31	31	30	29	29	29	28	30	30	30	30	31	31	31	31	31	30	31	31	30	30	30	30
M (3000) F1	MED									390		370L	380	375	370	370	380	405	410						
	CNT									1		8	23	24	28	23	9	3	1						
h'F2	MED									245	245	245	255	255	250	250	240	240	230						
	CNT									1	9	25	30	30	31	31	28	12	2						
h'F	MED	300	300	295	270	250	230	U260	250	225	230	225	220	210	220	220	210	225	220	205	230	240	240	250	275
	CNT	31	31	31	30	30	29	26	29	30	30	30	30	31	31	31	31	31	31	31	31	30	28	28	29
h'Es	MED	110	105	105	105	100	100	100	100	135	140	125	125	120	120	105	105	105	105	100	100	100	100	100	100
	CNT	4	6	4	9	6	4	8	6	10	13	18	28	24	28	25	24	20	20	17	19	17	15	10	9
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA

Jan. 1966 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	030F	028F	028	026	024	024	I022A	031	040	053H	058	067	056	062	059H	050	045	030	022	027	034	034	034	036
2	S	S	S	S	S	S	SF	040F	048	050	053	063	058	050	052	053	038	028	027	I026S	026	028	031	031
3	029	028F	030	026	028	026	024	031	046	049	062	073	055	057	059H	050	038	034	031	033	027	027	030	032
4	033	031	C	C	C	C	C	C	C	044	070	064	054	060	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	060	060	054	060	057	076	056	044	027	031	027	027	030S	F	F
6	F	031F	030F	030F	033F	F	A	S	047	055	060	066	064	060	055	053	040	I026A	023	027	I025S	023	026	027
7	028	028	027	027	028	029	I024A	034	044	050	066	072	061	058	056	057	043	031	I025A	025	028	028	028	030
8	030	033F	030F	030	028	027	028	037	047	054	057	059	067	062	064	057	051	032H	033	029	033	033	037	034
9	F	F	F	F	046F	F	S	031	044	051S	074	061	067	056H	054	050	049	040	027	027F	F	033F	F	SF
10	F	F	F	F	F	F	026	038S	049	055	058	064	066	061	069	053	043	036	028	030	SF	SF	F	F
11	F	F	F	F	F	F	S	042	051	063	062	U068C	057H	068	053	060H	048S	033	038	033	043	SF	SF	SF
12	SF	F	F	F	F	F	023F	040S	049	045	068	055H	063	054	058H	053	054	U033S	032	038	036	040	035	SF
13	F	F	C	C	C	C	C	C	C	C	063	064H	067	053	U050S	053	047	034	034	038F	F	SF	SF	SF
14	SF	F	F	F	F	F	S	S	047	048	068	054	058H	070	054	061	045	027H	030	035	040	S	F	033F
15	SF	033F	033F	034F	033F	SF	C	C	C	066	060	057	060	062	053	066	048	031	033	032	034	037	036	039
16	041	F	038	036	F	034	027	033	046	050	066	062H	069	060	067	065H	054	029	026	033	032	I030S	033	031
17	033	033	034	034	031	033	028	039	047	056	070	064	060	050	063	064	043	028H	029	027	026	026	030	031
18	033	030	SF	032F	028F	033	033	U043S	053	060	062	064	064	055	056	056	050	032	033	I024S	026	028	030	027
19	027	030	030	030	C	C	024	034	050	I058C	063	I063C	061	057	073	074	046	039	038	025	026	032	033	033
20	SF	SF	SF	F	F	F	028	039	053	056	063	071	067	I068S	057H	056	063	051	A	027	027	030	033F	SF
21	036F	036F	035F	031F	F	033F	023F	040	060	052V	079	C	070	066	068H	067	050H	043	A	034	S	031	031	033
22	032F	030	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C.	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	067	067	061H	063H	058H	051	040	036	028	029	034	036	036
25	034	034	SF	033F	SF	030F	029	047	060	056	060	070	072	064	058	055	056H	041	023	031	030	026	027	031
26	I032S	036F	033F	F	F	027F	S	044	048	052	057	073	068	058	061	059H	058	037	030	A	A	A	030	033
27	SF	F	034F	033	030	028F	I024S	034	048	057	056H	074	067	062	059	066H	051	039	029	030	026	024	030	030
28	030F	030F	030F	030F	030F	030F	026S	041	048	I056C	050	057H	067	061	069	053	056H	039	030	030	030	032	033	031
29	033F	030F	030	031	033	034	036	044	050H	054	056	060	070	056	051H	057	054	037	026	034	027	029	032	030
30	031	032	031	027	027	026	023	037	045H	C	C	C	C	C	C	C	050	039	026	029	031	033	037	SF
31	SF	SF	F	033F	031F	030	026	035	050	I046C	062H	065	058	054	053	051	047	039	035	031	029	033F	033F	032F
No.	16	17	15	17	14	15	18	22	24	26	27	27	28	28	27	27	28	28	26	27	23	23	22	20
Median	032	031F	030	031	030	030	026	038	048	054	062	064	064	060	058	056	048	034	030	030	029	030	032	032
U. Q.	033	033	034	033	033	033	028	041	050	056	066	068	067	062	064	061	052	039	033	033	033	033	034	033
L. Q.	030	030	030	028	028	027	024	034	046	050	058	060	059	056	054	053	044	030	026	027	026	028	030	030
Q. R.	003	003	004	005	005	006	004	007	004	006	008	008	008	006	010	008	008	009	007	006	007	005	004	003

foF2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 1

IONOSPHERIC DATA

Jan. 1966 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2												370	370											
3											L	U380L	350	340	320									
4									C			370		360	C	C								
5									C				360	A										
6												380		U370L	330L									
7											U400L	U380L												
8																								
9											U390L		380											
10												U400L	380											
11											U360L	390												
12												360												
13									C	C	360			360L										
14												380		380	360									
15									C	A	A	360	400	L										
16												380		380L	360									
17											400	400	390L											
18											U390L	400		U360L										
19										C		I400C	400	400										
20													I400A	A		A								
21											410	I400C		390										
22									C	C	C	C	C	C	C	C								
23									C	C	C	C	C	C	C	C								
24									C	C	C	400	400											
25									270	330	340		400	380	350									
26											360	390	400	400										
27										360		400	400		360									
28										C			400	B	B									
29												I380S	400	L										
30										C	C	C	C	C	C	C								
31										C		400	390	U390L	340	300								
No.									1	2	9	20	16	12	7	1								
Median									270	340	390	380	400	380	350	300								
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

foF1

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

W 2

IONOSPHERIC DATA

Jan. 1966 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	S	235	I260A	270	275	255	235	200	E							
2								S	180	225	245	255	270	250	230	S	S							
3								S	185	225	255	265	265	250	215	190	S							
4								C	C	A	260	265	260	250	C	C	C							
5								C	C	250	265	275	270	250	230	A	E							
6								E	A	215	245	270	265	265	230	A	E							
7								E	A	A	250	260	270	255	230	200	A							
8								S	200	225	250	270	285H	265	250	200	S							
9								A	R	235	250	265	270	260	230	200	S							
10								A	200	I225A	255	270	275	265	235	195	A							
11								S	180	230	240	270	265	270	250	A	S							
12								S	190	225	245	265	275	I250A	230	205	S							
13								C	C	C	255	280	265	245	225	215	S							
14								S	A	A	A	290	275	260	250	205	110							
15								C	C	A	A	A	285	275	260	210	S							
16								S	190	230	255	285	290	275	250	A	S							
17					E	E		S	180	235	280	285	290	280	255	215	A							
18								S	200	I245A	280	280	280	265	250	230	A							
19								S	200	I245C	290	I285C	295	275	250	190	S							
20								S	205	255	280	290	295	280	I235A	205	S							
21								S	200	230	B	I280C	295	280	250	A	S							
22								C	C	C	C	C	C	C	C	C	C							
23								C	C	C	C	C	C	C	C	C	C							
24								C	C	C	C	290	280	275	245	225	S							
25								S	195	230	260	285	290	285	260	210	S							
26								S	225	250	270	280	285	275	R	210	S							
27								S	S	235	B	B	B	B	B	B	S							
28								S	B	C	B	B	B	B	B	B	B							
29								S	S	245	255	I275S	290	B	260	230	S							
30								S	205	C	C	C	C	C	C	C	S							
31					E			S	S	I230C	I265A	275	I270A	265	I255A	225	S							
No.					2	1		2	15	21	22	25	26	25	24	19	4							
Median					E	E		E	200	230	255	275	275	265	250	205	E							
U. Q.																								
L. Q.																								
Q. R.																								

foE

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 3

IONOSPHERIC DATA

Jan. 1966 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E015S	E015S	E	E	E	E	032	E016S	E023S	030	030	033	G	G	G	G	020	J023	E018S	E016S	E017S	E016S	E015S	J021
2	E015S	E	E	016	E	E	E015S	E013S	G	G	G	G	G	G	G	E022S	E018S	E012S	E018S	E020S	E020S	E018S	E013S	E
3	E	E	E	E	013	J020	E016S	E015S	G	G	G	G	025G	G	G	015G	E015S	E017S	E020S	E018S	E020S	E022S	E019S	E016S
4	E019S	E	C	C	C	C	C	C	C	029	G	G	G	G	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	G	032	031	G	047	032	034	J043	J021	J032	J023	E016S	E020S	E013S	E016S
6	E016S	018	E	013	J023	E	J031	049M	023	028	G	G	G	G	G	J043	J040	040	023	E020S	024	023	E016S	E016S
7	E	E012S	E	E	E	J031	J040	J029	031	028	030	020G	G	034	G	G	J030	J063	J038	E018S	E016S	E016S	E018S	E017S
8	E018S	E011S	E	E	E	E	E015S	E017S	G	029	032	G	034	G	G	G	E015S	E	E018S	E	E020S	E012S	E	E017S
9	E017S	E	E	E	E	E	E016S	022	020	028	031	033	020G	G	032	G	E015S	J035	J021	030	E011S	E020S	E017S	J033
10	E017S	E	E	E	E	E012S	J033	J021	G	033	029	G	G	G	028	031	023	J021	J023	J023	J030	J038	E018S	J026
11	J033	J028	018	J021	E	E	E015S	E018S	G	G	030	038	032	G	G	024	E019S	E018S	J033	J032	J023	J030	E015S	E016S
12	E012S	E	E	E	E	E	E016S	E017S	025	030	032	G	029	042	027	023	J035	J023	E017S	E020S	E020S	J023	022	E018S
13	E016S	E012S	C	C	C	C	C	C	C	C	G	G	G	031	G	G	E020S	E017S	E019S	E012S	E018S	E020S	E018S	E018S
14	E017S	J025	015	E	E	E	E020S	E014S	J025	028	033	G	G	G	G	G	G	E015S	E018S	E020S	E011S	E019S	E017S	E017S
15	E017S	E	E	E	E	E	C	C	C	J063	J043	J041	G	G	G	G	E016S	E016S	016	J043	E020S	E014S	E016S	E
16	E015S	017	013	013	E	E011S	E016S	E016S	G	G	034	G	G	030	033	030	E020S	E016S	E016S	E018S	E016S	S	E020S	E016S
17	E011S	E	E	E	E	E	E016S	E016S	G	G	G	G	027G	G	G	G	025	J023	J025	E015S	J040	E018S	E018S	E017S
18	E012S	E	E	E	E	018	E017S	E014S	G	032	G	023G	030	020G	031	028	023	E017S	E020S	S	E016S	E019S	E018S	E019S
19	E019S	E015S	E	J024	C	C	E017S	E015S	G	C	030	C	036	034	032	024	J034	020	J023	J021	E015S	E015S	E018S	E012S
20	E017S	E	020	J030	020	E	E016S	E015S	G	031	035	040	050	043	J088	J044	J051	J063	050M	E018S	E018S	E	E	E
21	E015S	013	E	021	E	E	E016S	E016S	023	028	030	C	038	032	030	026	E019S	J113	J063	J051	E018S	J023	J028	J028
22	020	018	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	030	022	E016S	023	E017S	E018S	E017S	E018S	E020S
25	E020S	E015S	E012S	E	E	E	E017S	E016S	025	G	G	G	G	G	G	040	028	E016S	E	E022S	E018S	E016S	E020S	E017S
26	S	E	E	E	E	E015S	S	J030	024	032	G	G	G	G	G	G	E018S	J021	E018S	J033	J043	030M	J022	E017S
27	E018S	E	E	E	E	023	J023	J018	E021S	G	E029B	E030B	E034B	E033B	E026B	E025B	030	J023	J038	E020S	E012S	E018S	E017S	E017S
28	E017S	E012S	E	E	E	E	E	E015S	E026B	C	E032B	E036B	E035B	E040B	E035B	E026B	E022B	E017S	E020S	E020S	E018S	E019S	E018S	E016S
29	E016S	E011S	E	E	E	E012S	E	E016S	E020S	G	030	E040S	G	E032B	G	G	E020S	E017S	E019S	E016S	020	E017S	E020S	E020S
30	E019S	E015S	E	E	013	E	023	E017S	G	C	C	C	C	C	C	C	E018S	J043	E016S	J034	E018S	J023	E012S	E012S
31	E018S	018	E	E	E	E	E017S	E015S	E020S	C	030	023G	030	G	030	G	E020S	E016S	E017S	E016S	E018S	E016S	E016S	E014S
No.	27	28	25	25	24	24	23	24	24	23	27	26	28	28	27	27	28	28	28	27	28	27	28	28
Median	E017S	E012S	E	E	E	E	E016S	E016S	E020G	028	030	G	G	G	G	E023G	E020S	E019S	E020S	E020S	E018S	E019S	E018S	E017S
U. Q.	E018	015	E	013	E	012	023	E018	024	030	032	033	031	032	031	030	029	023	024	023	E020	023	E018	E018
L. Q.	E015	E	E	E	E	E	E016	E015	G	G	G	G	G	G	G	G	E018	E016	E018	E017	E016	E016	E016	E016
Q. R.							D007										D011	D007	D006	D006		D007		

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

foEs

W 4

IONOSPHERIC DATA

Jan. 1966 | f_bE_s | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S					A	S	S	G	030	G					G	020	S	S	S	S	S	E016S
2	S			E			S	S								S	S	S	S	S	S	S	S	
3					011	015	S	S					023G			015G	S	S	S	S	S	S	S	S
4	S		C	C	C	C	C	C	C	025					C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C		G	G		042	G	029	025	017	020	020	S	S	S	S
6	S	E		E	E		A	021	022	G						021	017	A	018	S	S	E012S	S	S
7		S				020	A	016	023	028	020	018		G			015	018	A	S	S	S	S	S
8	S	S					S	S		G	G		G				S		S		S	S		S
9	S						S	016	G	G	G	G	020G		G		S	015	E018S	018	S	S	S	023
10	S					S	020	020		026	021				G	G	018	017	020	020	020	024	S	018
11	020	E	012	E			S	S			G	020G	020G			020	S	S	021	020	020	018	S	S
12	S						S	S	015	G	G		025	036	G	G	020	021	S	S	S	019	019	S
13	S	S	C	C	C	C	C	C	C	C				G			S	S	S	S	S	S	S	S
14	S	013	012				S	S	020	023	026							S	S	S	S	S	S	S
15	S						C	C	C	040	040	031					S	S	017	028	S	S	S	
16	S	012	E	E		S	S	S			G			024G	020	023	S	S	S	S	S	S	S	S
17	S						S	S					022G				017	015	018	S	E018S	S	S	S
18	S					E	S	S		026		020G	020	020G	020	020	020	S	S	S	S	S	S	S
19	S	S		020	C	C	S	S		C	G	C	G	G	G	G	034	018	E018S	019	S	S	S	S
20	S		E	019	015		S	S		G	G	G	043	039	032	042	043	030	A	S	S			
21	S	012		013			S	S	G	G	G	C	G	G	G	026	S	015	A	022	S	017	019	025
22	018	018	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C					G	G	S	E017S	S	S	S	S	S
25	S	S	S				S	S	G							036	023	S		S	S	S	S	S
26	S					S	S	025	020	G							S	017	S	A	A	A	020	S
27	S					E	018	017	S		B	B	B	B	B	B	022	E016S	020	S	S	S	S	S
28	S	S						S	B	C	B	B	B	B	B	B	B	S	S	S	S	S	S	S
29	S	S				S		S	S		G	S		B			S	S	S	S	018	S	S	S
30	S	S			E		E016S	S		C	C	C	C	C	C	C	S	022	S	018	S	019	S	S
31	S	012					S	S	S	C	029	020G	030		026		S	S	S	S	S	S	S	S
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

f_bE_s

Sweep 1.0 Mc to 18.0Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 5

IONOSPHERIC DATA

Jan. 1966 | f-min | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E015S	E015S	E	E	E	E	E011S	E016S	E023S	020	018	017	018	017	018	016	E	E013S	E016S	E016S	E017S	E016S	E015S	E016S
2	E015S	E	E	E	E	E	E015S	E013S	012	016	015	020	020	018	017	E022S	E018S	E012S	E018S	E020S	E020S	E018S	E013S	E
3	E	E	E	E	E	E	E016S	E015S	011	012	017	017	012	017	017	011	E015S	E017S	E020S	E018S	E020S	E022S	E019S	E016S
4	E019S	E	C	C	C	C	C	C	C	011	013	016	012	017	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	016	015	017	012	020	012	011	E	E	E018S	E	E016S	E020S	E013S	E016S
6	E016S	E	E	E	E	E	E	E	011	015	017	018	020	018	017	012	E	E	E012S	E020S	E018S	E012S	E016S	E016S
7	E	E012S	E	E	E	E	E	E	E	010	012	011	018	018	017	012	E	E015S	E018S	E018S	E016S	E016S	E018S	E017S
8	E018S	E011S	E	E	E	E	E015S	E017S	011	010	018	012	018	012	012	011	E015S	E	E018S	E	E020S	E012S	E	E017S
9	E017S	E	E	E	E	E	E016S	E	E	011	011	012	011	018	018	015	E015S	E	E018S	E	E011S	E020S	E017S	E017S
10	E017S	E	E	E	E	E012S	E018S	E	015	016	017	020	022	020	020	012	010	010	E011S	E011S	E018S	E012S	E018S	E016S
11	E011S	E	E	E	E	E	E015S	E018S	011	014	011	011	E	018	016	011	E019S	E018S	E019S	E016S	E016S	E016S	E015S	E016S
12	E012S	E	E	E	E	E	E016S	E017S	E	E	011	011	011	011	011	012	E011S	010	E017S	E020S	E020S	E018S	E012S	E018S
13	E016S	E012	C	C	C	C	C	C	C	C	011	012	018	018	012	012	E020S	E017S	E019S	E012S	E018S	E020S	E018S	E018S
14	E017S	E	E	E	E	E	E020S	E014S	011	011	011	012	012	019	017	015	010	E015S	E018S	E020S	E011S	E019S	E017S	E017S
15	E017S	E	E	E	E	E	C	C	C	011	018	017	018	017	020	011	E016S	E016S	E011S	E018S	E020S	E014S	E016S	010
16	E015S	E	E	E	E	E011S	E016S	E016S	E	012	011	011	017	011	011	011	E020S	E016S	E016S	E018S	E016S	S	E020S	E016S
17	E011S	E	E	E	E	E	E016S	E016S	011	012	018	020	020	017	012	011	E	E011S	E017S	E015S	E018S	E018S	E018S	E017S
18	E012S	E	E	E	E	E	E017S	E014S	011	011	012	012	012	012	011	011	012	E017S	E020S	S	E016S	E019S	E018S	E019S
19	E019S	E015S	E	E	C	C	E017S	E015S	011	C	017	C	018	018	017	012	E015S	E	E018S	E011S	E015S	E015S	E018S	E012S
20	E017S	E	E	E	E	E	E016S	E015S	015	020	018	020	020	020	020	018	E017S	E013S	E012S	E018S	E018S	E	E	E
21	E015S	E	E	E	E	E	E016S	E016S	018	020	025	C	020	020	020	020	E019S	E	E012S	E011S	E018S	E012S	E015S	E017S
22	E	E	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	020	020	020	017	017	E015S	E016S	E017S	E017S	E018S	E017S	E018S	E020S
25	E020S	E015S	E012S	E	E	E	E017S	E016S	011	017	017	020	020	018	020	018	E016S	E016S	E	E022S	E018S	E016S	E020S	E017S
26	S	E	E	E	E	E015S	S	E015S	010	017	018	020	020	020	020	018	E018S	010	E018S	E011S	E016S	E012S	E017S	E017S
27	E018S	E	E	E	E	E	E011S	E012S	E021S	020	029	030	034	033	026	025	E020S	E016S	E018S	E020S	E012S	E018S	E017S	E017S
28	E017S	E012S	E	E	E	E	E	E015S	026	C	032	036	035	040	035	026	022	E017S	E020S	E020S	E018S	E019S	E018S	E016S
29	E016S	E011S	E	E	E	E012S	E	E016S	E020S	021	020	E040S	025	032	020	020	E020S	E017S	E019S	E016S	E016S	E017S	E020S	E020S
30	E019S	E015S	E	E	E	E	E016S	E017S	011	C	C	C	C	C	C	C	E018S	E	E016S	E015S	E018S	E018S	E012S	E012S
31	E018S	E	E	E	E	E	E017S	E015S	E020S	C	019	019	018	020	020	018	E020S	E016S	E017S	E016S	E018S	E016S	E016S	E014S
No.	27	28	25	25	24	24	23	24	24	23	27	26	28	28	27	27	28	28	28	27	28	27	28	28
Median	E016S	E	E	E	E	E	E016S	E015S	011	014	017	017	018	018	017	012	E016S	E014S	E018S	E016S	E018S	E017S	E017S	E016S
U. Q.																								
L. Q.																								
Q. R.																								

f-min

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 6

IONOSPHERIC DATA

Jan. 1966 | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	330F	300F	320	310	310	335	I340A	355	370	310H	360	355	355	375	320H	340	380	310	365	335	340	335	295	310
2	S	S	S	S	S	S	SF	350F	360	370	360	365	365	355	350	350	365	295	315	I335S	320	300	300	290
3	300	305F	300	300	320	340	340	325	380	350	340	355	375	350	340H	365	365	325	325	350	335	315	300	290
4	305	290	C	C	C	C	C	C	C	380	345	365	370	365	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	345	355	335	370	350	365	380	365	320	335	335	335	385	F	F
6	F	295F	300F	305F	365F	F	A	S	360	360	350	360	375	350	350	360	355	I335A	315	335	I330S	315	310	305
7	300	295	295	305	320	340	I340A	345	365	330	350	360	375	345	375	385	375	325	I345A	330	315	320	295	300
8	300	295F	300F	325	310	335	345	350	365	335	365	325	360	355	370	360	375	295H	335	345	310	305	320	295
9	F	F	F	F	350F	F	S	325	365	355S	355	360	350	340H	370	350	360	355	315	335F	F	335F	F	SF
10	F	F	F	F	F	F	345	340S	365	370	340	330	380	340	360	370	350	330	330	315	SF	SF	F	F
11	F	F	F	F	F	F	S	335	370	365	370	U355C	320H	355	380	335H	365S	335	320	340	325	SF	SF	SF
12	SF	F	F	F	F	F	350F	325S	370	360	370	310H	350	330	345H	360	370	U340S	345	355	330	345	315	SF
13	F	F	C	C	C	C	C	C	C	C	350	345H	380	360	U360S	340	385	345	355	340F	F	SF	SF	F
14	SF	F	F	F	F	F	S	S	375	360	355	370	320H	340	355	360	355	325H	310	345	325	S	F	305F
15	SF	305F	305F	295F	305F	SF	C	C	C	305	350	365	370	340	340	370	375	330	335	320	325	325	310	310
16	305	F	315	345	F	355	335	335	370	340	365	350H	365	375	350	340H	350	345	310	335	320	I310S	305	325
17	295	305	320	325	325	320	350	360	385	355	355	360	365	360	330	360	360	295H	320	325	315	310	300	290
18	295	290	SF	295F	295F	335	320	U350S	380	365	375	360	375	345	360	350	360	325	325	I330S	310	315	305	300
19	295	285	295	305	C	C	335	340	345	I360C	365	I350C	360	340	335	355	370	360	350	330	315	310	330	290
20	SF	SF	SF	F	F	F	330	360	375	325	350	380	360	I360S	305H	360	335	360	A	320	335	300	295F	SF
21	310F	305F	285F	315F	F	335F	320F	350	370	345V	335	C	360	335	335H	355	325H	350	A	340	S	275	300	295
22	280F	280	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	360	360	315H	335H	330H	355	325	360	335	305	325	300	305
25	295	295	SF	305F	SF	325F	310	360	370	340	335	360	365	345	365	350	340H	340	305	325	350	325	295	285
26	I300S	285F	295F	F	F	335F	S	345	350	350	350	355	355	360	365	320H	370	325	335	A	A	A	285	285
27	SF	F	310F	335	335	320F	I325S	350	360	350	330H	345	350	330	375	335H	355	330	305	335	325	305	300	300
28	300F	290F	300F	300F	300F	305F	345S	365	350	I360C	350	350H	360	360	370	350	340H	350	345	320	335	310	310	300
29	305F	300F	315	325	325	325	335	365	310H	370	325	365	330	360	335H	370	385	325	325	345	320	295	290	295
30	295	280	305	310	310	325	350	355	360H	C	C	C	C	C	C	C	360	355	325	320	315	305	320	SF
31	SF	SF	F	295F	320F	335	310	345	365	0365C	330H	350	350	370	380	370	370	340	340	330	310	285F	305F	290F
No.	16	17	15	17	14	15	18	22	24	26	27	27	28	28	27	27	28	28	26	27	23	23	22	20
Median	300	295F	300	305	320	335	340	350	365	355	350	355	360	350	355	355	360	330	330	335	325	310	300	300
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 7

IONOSPHERIC DATA

Jan. 1966 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2												405	415											
3											L	U395L	430	420	405									
4									C			405		390	C	C								
5									C				415	A										
6												400		U405L	395L									
7											U375L	U395L												
8																								
9											U390L		395											
10												U375L	420											
11											U415L	385												
12												415												
13									C	C	400			415L										
14												410		370	400									
15									C	A	A	415	400	L										
16												420		395L	395									
17											390	385	405L											
18											U410L	400		U415L										
19										C		I400C	400	400										
20													I390A	A		A								
21											380	I380C		395										
22									C	C	C	C	C	C	C	C								
23									C	C	C	C	C	C	C	C								
24									C	C	C	400	375											
25									410	430	410		400	395	405									
26											415	390	395	385										
27										390		375	400		400									
28										C			375	B	B									
29												I390S	380	L										
30										C	C	C	C	C	C	C								
31										C		375	385	U390L	410	405								
No.									1	2	9	20	16	12	7	1								
Median									410	410	400	400	400	395	400	405								
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F1

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W

IONOSPHERIC DATA

Jan. 1966 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2												240	230											
3											250	235	225	225	230									
4									C			240		260	C	C								
5									C				240	260										
6												240		245	245									
7											260	230												
8																								
9											250		230											
10												270	225											
11											225	255												
12												230H												
13									C	C	230			250										
14												235		255	235									
15									C	225	245	230	235	L										
16												225		240	255									
17											250	260	230											
18											230	245		245										
19										C		I245C	255	250										
20													240	245		240								
21											265	I250C		250										
22									C	C	C	C	C	C	C	C								
23									C	C	C	C	C	C	C	C								
24									C	C	C	240	250											
25									225	235	250		235	250	230									
26											225	255	255	250										
27										250		260	250		235									
28										C			245	250	235									
29												245	270	240										
30										C	C	C	C	C	C	C								
31										C		260	250	245	230	225								
No.									1	3	11	20	16	16	8	2								
Median									225	235	250	240	240	250	235	230								
U. Q.																								
L. Q.																								
Q. R.																								

h'F2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 9

IONOSPHERIC DATA

Jan. 1966 | h'F km | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300	300	250	255	265	235	I215A	215	210	230	245	240H	220	225	220H	220	205	275	250	260	245	245	270	270
2	265	250	260	250	210	210	240	220	210	200H	200H	230	210	230	225	230	210	225	250	240	E300S	300	300	295
3	260	295	275	275	215	240	250	220	210	225	245	245	215	220	210	225	205	220	265	230	250	E300S	280	300
4	295	300	C	C	C	C	C	C	C	200H	260	235	225	215	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	235	230	235	225	I235A	235	215	210	260	250	270	250	350	330	315
6	290	305	300	250	210	220	I250A	250	220	225	225	235	215H	230	225	225	200	I260A	E300A	250	I270S	265	300	300
7	290	300	290	270	250	255	I265A	225	220	230	250	240	225	220	225	220	215	225	I260A	270	275	250	320	295
8	290	300	275	250	235	240	220	230	210	230H	225	245	250	240	230	225	210	190	250	210	275	275	260	300
9	290	260	260	275	215	225	210	210	220	220	250	240	225	225	220	220	225	220	275	250	250	250	260	300
10	270	250	290	270	260	250	250	230	220	220	235	250	230	250H	240H	220	200	220	250	260	280	300	300	280
11	300	260	290	265	250	210	210	225	225	245	225	250	210	245	220	210H	210	245	250	230	250	250	270	300
12	275	280	270	250	230	230	275	225	210	215	225	200	200H	240A	225	225	225	225	225	245	250	230	285	290
13	255	260	C	C	C	C	C	C	C	C	230	200H	220	205	200	225	215	235	235	230	250	250	280	250
14	250	250	265	250	240	225	250	225	210	205	200H	220	200H	240	210	225	210	225H	275	255	250	235	275	280
15	275	260	280	275	260	225	C	C	C	A	A	210	235	240	230	225	210	200	220	300A	270	250	250	260
16	250	270	250	250	250	210	240	220	220	240	240	210	235	230	210	235	220	200	300	250	250	I255S	290	250
17	275	280	255	250	250	240	225	220	210	225	250	210	225	215	245	240	210	210H	250	260	290	260	275	300
18	300	300	275	260	260	250	250	225	215	215	230	230	240	200	210H	235	225	220	250	S	290	280	280	300
19	335	300	290	300	C	C	235	225	220	I235C	240	I240C	245	225	270	235H	225A	215	230	270	290	305	275	275
20	280	285	250	300	295	250	250	220	210	225	240	225	I235A	I240A	215H	I220A	A	A	A	250	250	295	290	300
21	300	300	295	255	280	240	300	215	225	220	245	I240C	235	230	225	235	220	210	A	260	S	350	340	350A
22	310	300	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	210	230	200H	245	220	205	230	220	245	265	260	295	260
25	300	300	300	295	300	260	250	225	220	210	190	245	240	220	225	I225A	215H	210	235	275	225	255	325	335
26	I290S	270	285	250	205	245	S	220	230	230	220	220	245	225	245	225	210	225	250	A	A	A	350	315
27	275	270	260	240	240	270	280	235	220	240	210H	215	225	220	220	230H	215	250	320	260	235	300	300	315
28	300	290	260	265	260	255	230	220	215	I240C	250	245H	245	I230B	I230B	225	230	215	250	250	250	275	260	270
29	280	275	260	250	240	230	220	200	210	225	250	I240S	210	230	230	230	210	215	250	240	250	300	300	325
30	300	300	275	275	260	250	250	220	210H	C	C	C	C	C	C	C	205	225	250	250	275	275	255	260
31	300	260	260	260	250	220	250	215	225	I215C	215H	250	225	215	225	210	215	220	240	250	250	290	290	300
No.	28	28	25	25	24	24	23	24	24	25	26	28	28	28	27	27	27	27	26	26	26	27	28	28
Median	290	280	275	260	250	240	250	220	220	225	230	235	225	230	225	225	210	220	250	250	250	270	290	300
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

h'F

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

W 10

IONOSPHERIC DATA

Jan. 1966 | $h'Es$ km | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N, Long. 141° 41.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	E	E	E	E	110	S	S	150	105	140	G	G	G	G	130	110	S	S	S	S	S	100
2	S	E	E	100	E	E	S	S	G	G	G	G	G	G	G	S	S	S	S	S	S	S	S	E
3	E	E	E	E	115	110	S	S	G	G	G	G	105	G	G	105	S	S	S	S	S	S	S	S
4	S	E	C	C	C	C	C	C	C	115	G	G	G	G	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	G	150	150	G	120	125	125	110	110	110	110	S	S	S	S
6	S	110	E	110	125	E	110	105	110	170	G	G	G	G	G	115	105	105	100	S	100	100	S	S
7	E	S	E	E	E	110	110	110	110	105	175	105	G	145	G	G	110	110	110	S	S	S	S	S
8	S	S	E	E	E	E	S	S	G	170	160	G	150	G	G	G	S	E	S	E	S	S	E	S
9	S	E	E	E	E	E	S	110	150	170	155	145	105	G	145	G	S	110	105	105	S	S	S	100
10	S	E	E	E	E	S	110	110	G	105	100	G	G	G	150	120	110	110	110	110	105	105	S	120
11	110	110	110	110	E	E	S	S	G	G	135	125	130	G	G	100	S	S	110	105	105	140	S	S
12	S	E	E	E	E	E	S	S	150	150	120	G	110	110	115	135	110	110	S	S	S	105	105	S
13	S	S	C	C	C	C	C	C	C	C	G	G	G	125	G	G	S	S	S	S	S	S	S	S
14	S	105	105	E	E	E	S	S	110	110	110	G	G	G	G	G	G	S	S	S	S	S	S	S
15	S	E	E	E	E	E	C	C	C	105	105	105	G	G	G	G	S	S	105	110	S	S	S	E
16	S	105	105	105	E	S	S	S	G	G	120	G	G	105	105	105	S	S	S	S	S	S	S	S
17	S	E	E	E	E	E	S	S	G	G	G	G	105	G	G	G	115	115	110	S	110	S	S	S
18	S	E	E	E	E	110	S	S	G	105	G	105	105	105	100	100	100	S	S	S	S	S	S	S
19	S	S	E	110	C	C	S	S	G	C	110	C	125	120	115	115	110	105	105	105	S	S	S	S
20	S	E	110	105	110	E	S	S	G	160	150	140	125	120	110	115	110	105	105	S	S	E	E	E
21	S	105	E	110	E	E	S	S	150	150	155	C	130	135	125	120	S	110	110	105	S	110	110	105
22	105	105	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	130	125	S	115	S	S	S	S	S
25	S	S	S	E	E	E	S	S	125	G	G	G	G	G	G	115	110	S	E	S	S	S	S	S
26	S	E	E	E	E	S	S	115	110	155	G	G	G	G	G	G	S	105	S	105	105	105	105	S
27	S	E	E	E	E	115	105	110	S	G	B	B	B	B	B	B	110	110	105	S	S	S	S	S
28	S	S	E	E	E	E	E	S	B	C	B	B	B	B	B	B	B	S	S	S	S	S	S	S
29	S	S	E	E	E	S	E	S	S	G	125	S	G	B	G	G	S	S	S	S	100	S	S	S
30	S	S	E	E	110	E	110	S	G	C	C	C	C	C	C	C	S	110	S	105	S	110	S	S
31	S	110	E	E	E	E	S	S	S	C	105	105	105	G	115	G	S	S	S	S	S	S	S	S
No.	2	7	4	7	4	4	6	6	8	14	16	9	11	9	10	13	13	14	13	9	6	7	3	4
Median	110	105	110	110	110	110	110	110	120	150	120	125	110	120	115	115	110	110	110	105	105	105	105	100
U. Q.																								
L. Q.																								
Q. R.																								

$h'Es$

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 11

IONOSPHERIC DATA

Jan. 1966 | Types of Es | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6′N, Long. 141° 41.1′E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							f			h	l	h					c	f2						f
2				f																				
3					f	f							l			l								
4										l														
5											h	h		c	c	c l	l	f	f	f				
6		f		f	f		f2	l2	l	h						l	l	f	f		f	f		
7						f2	f2	l	l	l	h l	l		h			l	f	f					
8										h	h		h											
9								l	h	h	h	h	l		h			f	f	f				f
10							f2	l2		l	l				h	c	l	f	f	f	f	f		f
11	f	f	f	f							h	c l	c l			l			f	f	f	f		
12									h l	h	c		l	l	c	h	c	f				f	f	
13														c										
14		f	f						l	l	l													
15										l2	l2	l							f	f				
16		f	f	f							c			l	l	l								
17													l				l	f	f		f			
18						f				l		l	l	l	l	l	l							
19				f2							l		c	c	c	c	l	f	f	f				
20			f	f2	f					h	h	h	c	c	l	c	l4	f4	f2					
21		f		f2					h	h	h		h	h	c	l		f	f2	f		f	f	f
22	f	f																						
23																								
24																c	c		f					
25									c							c2	l							
26								c	l	h								f		f	f	f	f	
27						f	f	l									l	f	f					
28																								
29											c										f			
30					f		f											f		f2		f		
31		f									l	l	l		l									
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

Types of Es

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jan. 1966 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	027	025	027	027	025	022	020	039	045	045	059	I066R	061	054	057	055	046	032R	028	029	037	036	027	031
2	032S	034F	F	036F	037F	029	029	040	051	052	053	058	058	056	I056R	056H	046	030	028	030	024	026	028F	029F
3	028F	027F	027	027	026	023	023	041	054	049	055	062	069	066	060	057	042	032	039	039	028	023	025	028
4	030	028	029	031	029	022	022	036	050	049H	054	I079R	069H	059H	063	053V	044	032	032	031	028	028	026	028F
5	029F	029F	030F	031	031	025	024	042	049	049	069	068	066	060	067H	063	050	029	028	030	027	023	029	031S
6	032F	030	029	031S	034	022	019	037	061	057H	063H	068	065	062	059	058H	049	032	026	025	024	025	028	028
7	030V	030	029	029	030	026	024	040	050	049	065	074	065	059	055S	057	051	028H	029	025	028	025	027	FS
8	029F	030	031	033	032S	025	023	036	066	051	061	061	062H	068	058	053	056	034	030	032	028	028	029	029
9	031	032	031F	031S	038S	028S	FS	038	048	057	069	078	061	058H	054	054H	046	041	042	027F	028	033	F	F
10	F	F	F	F	F	F	028	036	054H	052	056H	069	076	061	058	072	053	033H	030	025	030	032S	FS	F
11	030	030	030	030	029	025	022F	044	055	056	I066R	071	071	I058R	056	054	049	037	032F	034S	036S	033F	FS	FS
12	FS	FS	FS	FS	FS	025	020H	036	045	056H	U059R	072S	055	063H	I051A	057	053	038	028	028	033R	030H	023H	026
13	030H	028	028	027F	027	024	031F	043	049	049	062	077	I068R	068	051	050	060	031	023	037	036	FS	FS	FS
14	F	F	F	FS	F	026F	028F	042	050	054	050	061	062	067	069S	053	051	034	026	028	035	030	F	028F
15	029S	029	031S	027F	027F	023F	025F	042S	050	063	060	066	I059R	057	055	060	055	030	034	036	030	033S	028	028
16	FS	029F	F	FS	039S	F	031	045	047H	054	056	077	057	072	057	061	059H	041	021	030	029	026	025	028
17	028	029	030	029	028	028	024	043	053	048H	057H	076	059	060	050	068	058	035	027	028	030	025	025	028F
18	029S	I030S	028	028	028	027	026	046	056	052	060	065	063	061	061	054	054	043	029	030	027S	026S	028	FS
19	027S	028S	029	030	030	027	025H	039	044	059	066	068	061H	068	057H	080	059	039	038	A	A	A	029S	029S
20	030S	030S	032F	032S	031S	034F	033F	I044R	059	055	070	072	066	061H	066H	063	052	058	039	030	I027A	023	029	030
21	030	032	032	036	033	035	027	047	049	064	089	071H	070	074	069	058	064	048	I033R	030	A	A	032F	I033R
22	031	032	031	029F	027	025	025	042	059	064	065	081	074	073	062	071	052	036	033	037	039S	030	029	032
23	028	030F	F	F	023F	024F	024	043	057	073	082H	080	071	067	053H	059	057	043	039	036	028	034Z	F	030F
24	029F	029	027	FS	025	025	024	047S	069	076	069	075	073	070	064	059	067	041	039	036	027	029	030	030
25	029	029	030	030F	030	030	028	050	055	057	060	082	071	068H	062H	059	I060R	045Z	036	I027C	I033C	024	024	025
26	027	029	029	032	I032R	I024R	023	044	048	057	060	066	070	072	067	060H	057	037H	032	032	024	027	027	031F
27	031F	032F	031S	030	028	022F	020S	040	056	059	066	065	075	069	059H	057	049H	046	036	031	029	020	023	I026R
28	027	027	027	027	027	026	024	044	047	054	058	067	065	064	060	054	052	047	031	027	030	028	028	027
29	031S	029	029	029	032H	033F	029	040	046	C	C	C	C	C	C	C	C	C	026	030	030	023	029	028F
30	027F	027	027	028	027	026	025	040	049	050	071	064	061	057	056H	062	046	042	036	025	028	031	033	033
31	F	F	F	F	030F	029	029	042	046	054	051	059	058	062	054	052	047	035	037	036	027	031F	032F	FS
No.	26	27	24	24	28	29	30	31	31	30	30	30	30	30	30	30	30	30	31	30	29	28	25	24
Median	029	029	029	030	030	025	024	042	050	054	060	068	065	062	058	058	052	036	032	030	028	028	028	028
U. Q.	030	030	031	031	032	028	028	044	056	057	066	076	070	068	062	061	057	042	036	034	032	031	029	030
L. Q.	028	028	028	028	027	024	023	039	048	050	057	065	061	059	055	054	049	032	028	028	027	025	026	028
Q. R.	002	002	003	003	005	004	005	005	008	007	009	011	009	009	007	007	008	010	008	006	005	006	003	002

foF2

Sweep 1.6 Mc to 16.0Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 1

IONOSPHERIC DATA

Jan. 1966 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	360L	320									
2									L	280	320	L	L	L										
3										LH	LH	L	L	L	L	260								
4										320	L	400L	LH	L	L	L								
5										L	L	L	L	L	340	L	220							
6									230	290	LH	410	380L	LH	L	L								
7									230	300	380L	400	380L	L	L									
8										LH	L	LH	420L	L	360L									
9											L	400L	L	L	L									
10									240		350L	L	L	L	L	L								
11										L	410	L	L	L	320L	LH								
12										L		380	330	L	I360A	310H								
13										L	390L	LH	410L	L	L									
14									L	L	L	380L	410L	390	L									
15										L	390	380	380	380L	L									
16										310	L	L	410L	L	380L	L								
17									280L	330	370	L	420L	400L	L									
18									L	L	LH	L	400L	370L	LH	280								
19									260	330	L	L	420	400	380	320								
20									270L	320	400	420L	L	400L	L	L	L							
21									270	I330S	L	420	420L	L	L	A								
22										A	400L	430L	410L	410	L	L								
23										L	400	410L	L	360	300									
24										360L	410L	400	L	L	L									
25									300L	LH	LH	L	410L	L	L	L								
26									240	310H	LH	410L	L	L	L	310								
27										L	400L	400L	410L	400	L									
28									260	LH	400L	410L	L	410L	L	320L								
29									270	C	C	C	C	C	C	C								
30										L	410L	410	410	420L	L	L								
31										290	L	400L	380L	LH	370L	L	L							
No.									11	12	14	17	17	12	9	6	1							
Median									260	320	400L	400L	410L	400L	360	310	220							
U. Q.																								
L. Q.																								
Q. R.																								

foF1

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jan. 1966 | f_0E | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								E	I210A	245	265	I280S	280	270	255	230	B							
2								E	210	240	265	I275S	280	270	I240S	200	E							
3								E	A	A	260	270	275	I260A	A	A	B							
4								E	190	250	I265A	280	280	275	245	220	A							
5								E	A	A	270	280	280	270	245	A	B							
6								E	A	230	260	275	280	270	245	215	E							
7								E	180	I225R	260	275	275	265	245	215	A							
8								E	I215A	230	260	270	280	275	260	I230A	A							
9								E	210	I235A	260	270	280	270R	245	225	B							
10								E	I190A	I230A	I265A	285	285H	280	260	A	B							
11								E	A	I250A	I275A	285A	290	280	260	I230A	175							
12								E	I220A	245H	270	290	285	280	I260A	235	A							
13								E	I210A	245	270	295	290	275	I260A	235	A							
14								E	A	A	A	295	295	285	265	225	B							
15								E	I200A	245	275	290	295	295	I275A	A	A							
16								E	220	255	280	A	A	285	270	A	A							
17								E	I210A	A	A	290	300	I290S	I270A	240	175							
18								E	A	265	285	I290A	I300A	290	255	235	A							
19								E	A	280	295	305	310	295	280	A	A							
20								E	A	255	A	A	300	295	275	I240A	R							
21								E	220H	I250S	270	I280R	290	290	270	A	A							
22								E	190	245	275	280	290	280	A	A	180							
23								E	195	A	A	295	295	280	255	I230B	I190A							
24								E	A	I245A	270	285	290	I280A	275R	240	A							
25								E	210H	250	I275A	290	300	295	280	240	185							
26								E	I200A	I245A	275	290	300	290	270	235	B							
27								E	215	255	275	290	I290B	I280B	R	R	A							
28								E	225	B	B	B	B	B	B	B	B							
29								E	B	C	C	C	C	C	C	C	C							
30								E	205	I250A	280	I290A	295	290	270	250	A							
31								E	215	A	A	290	295	275	265	240	200							
No.								31	21	23	24	27	28	29	26	20	8							
Median								E	210	245	270	285	290	280	260	230	180							
U. Q.																								
L. Q.																								
Q. R.																								

f_0E

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 3

IONOSPHERIC DATA

Jan. 1966 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J016E	E	J016E	E	E	E	E	J015E	025	029	037	E034S	034	030	G	G	021	J024	J024	J025	E	E	E	E
2	E	E	E	E	E	E	E	J015E	J022	G	G	E035S	G	G	E031S	024	E	E	E	E	J026	E	J016E	J018
3	J016E	J013E	E	E	J016E	J013E	J029	J028	J032	J028	G	032	G	027	J030	022	018	017	E	J025	E	J016E	E	E
4	E	J027	J017	J017	J018	J016E	E	J017	G	G	J037	034	G	G	031	026	J024	J016E	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	J022	J028	033	G	031	030	029	025	E017B	J014E	E	E	J023	J028	J031	J026
6	E	J023	J027	J017	J015E	J015E	J017	J025	J031	J035	G	033	032	G	G	026	019	J020	J022	J018	J016E	J016E	E	E
7	E	J012E	E	J014E	J015E	E	E	E	G	J031	032	031	032	032	031	027	024	J020	J018	J019	J019	J015E	E	E
8	E	J013E	E	J013E	J018	J012E	E	J013E	025	G	032	G	036	034	032	029	024	J016E	J016E	J018	J040	J036	J023	J013E
9	J015E	E	E	E	J014E	J013E	E	E	J029	027	034	037	033	030	026	024	024	J022	J018	J026	J017	J017	J020	E
10	E	E	E	E	E	E	J013E	J013E	022	J031	029	035	033	031	G	026	022	J020	J048	J031	J019	J016E	J017	E
11	E	J023	J017	J015E	J015E	E	J012E	E	J025	029	034	J042	032	G	027	024	G	E	E	J023	J026	E	J024	J023
12	J016E	J013E	E	E	E	E	E	J018	023	028	031	032	031	031	J053	025	020	J020	J016E	J061	J038	J021	E	E
13	E	J020	J018	J015E	J013E	E	E	J016E	027	030	029	G	G	032	J034	025	022	J013E	J015E	E	E	E	E	E
14	J031	J018	J026	J023	J016E	J016E	E	E	J024	J036	J032	G	G	G	G	024	021	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E	E	023	J039	031	G	G	035	J059	J040	J045	J023	J014E	E	E	J036	J013E	J016E
16	J017	J026	J016E	J015E	018M	E	E	J015E	G	G	J032	J040	J059	G	G	J026	020	J015E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	J015E	023	027	031	032	G	E030S	032	J030	021	E	J015E	J018	J015E	E	J031	J016E
18	E	E	E	J013E	E	E	J016E	J025	J024	J030	JC42	J054	J037	G	G	G	021	E	E	E	E	E	J019	J018
19	J013E	J012E	E	E	J017	E	E	J015E	023	029	G	033	036	035	034	028	023	J034	J048	J062	J051	J028	J025	E
20	J025	J034	J035	J033	J028	J026	J040	020	021	028	J035	J033	032	032	031	026	G	E	J021	J036	J050	J031	J018	J019
21	J020	J016E	J018	E	E	J018	E	E	G	E040S	034	G	032	030	028	J033	020	J027	J053	J036	J050	J060	J025	J060
22	J030	J030	J037	J035	J025	J027	E	J022	028	034	033	036	G	034	036	032	023	J016E	J021	024	J031	J023	J025	J022
23	J025	J025	J016E	E	J018	J015E	J028	J017	021	J063	J064	025G	G	G	G	025	022	J013E	J017	E	J018	J016E	J025	E
24	E	J025	J043	J030	J015E	E	E	E	026	025	G	G	G	J032	031	027	025	J025	J020	E	J062	J029	J025	J023
25	J015E	E	E	E	E	E	E	E	G	J026	J028	033	G	G	G	G	G	J018	E	C	C	J015E	E	E
26	E	E	E	J025	J021	J025	E	E	023	J034	G	035	G	G	G	G	E018B	E	J020	J016E	J019	J013E	J020	J016E
27	E	J019	E	E	E	E	J015E	J027	J023	025G	030	032	E031B	E029B	G	G	022	E	J028	E	J036	J018	J012E	E
28	J018	E	E	J015E	J015E	E	E	E	G	E026B	E034B	035	032	E035B	E034B	E027B	E022B	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	E	E022B	C	C	C	C	C	C	C	C	C	J013E	J012E	E	E	E	E
30	E	E	E	J016E	J018	E	E	E	023	028	029	032	032	032	G	027	J028	E	J021	J026	J024	J015E	J019	J026
31	J025	J025	J021	E	J015E	E	E	J015E	023	J030	J029	G	G	G	G	025	G	E	E	E	E	E	E	J015E
No.	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	31	30	30	31	31	31
Median	E	E	E	E	E	E	E	E	023	028	032	032	031	030	027	026	021	E	E	E	J018	E	E	E
U. Q.	017	023	018	E	018	E	E	017	025	031	034	035	032	032	032	027	023	020	021	025	031	023	024	018
L. Q.	E	E	E	E	E	E	E	E	021	026	028	G	G	G	G	024	018	E	E	E	E	E	E	E
Q. R.									004	005	006					003	005							

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

foEs

IONOSPHERIC DATA

Jan. 1966 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									023	028	034	S	032	029			019	019	020	017				
2									017			S			S	023					E			E
3							E	026	021	024		031		027	027	022	018	E		E				
4		E	E	E	E			E			029	031			030	020	018							
5									019	024	033		030	030	029	024	B				E	E	E	E
6		E	E	E			E	E	018	024		033	031			025	018	017	E	E				
7										024	031	031	031	032	029	027	023	E	E	E	E			
8					E				024		031		036	033	028	025	023			E	018	E	E	
9									E	026	034	033	031	030	026	024	022	E	E	E	E	E	E	
10									021	026	027	035	033	030		026	021	E	E	E	E		017	
11		E	E						024	028	029	034	031		027	024				E	E		E	E
12								E	023	027	030	032	030	031	A	G	020	018		020	E	E		
13		E	E						023	027	028			032	028	024	021							
14	E	E	017	E					021	026	028					U024R	020							
15									021	022	031			G	028	025	026	E				023		
16	E	E			E						026	033	032			026	018							
17									022	027	029	U032R		S	028	021	021			E			017	
18								E	022	G	025	033	034				021						E	E
19					E				022	027		033	034	034	033	026	022	027	E	A	A	A	017	
20	E	025	017	018	E	E	018	018	021	G	034	030	032	032	030	025			019	024	A	E	E	E
21	E		E			E				S	034		032	030	028	033	U020R	022	018	017	A	A	017	024
22	017	025	E	018	E	E		E	028	033	032	034		033	034	029	021		E	020	031	E	018	017
23	019	017			E		017	E	021	037	032	021G				025	020		E		E		017	
24		017	022	021					025	U025R				U032R	E031R	027	024	U025R	017		E	E	018	E
25										G	028	033						017		C	C			
26				E	E	018			023	026		035					B		E		E		E	
27		E						017	018	018G	030	032	B	B			021		018		020	E		
28	E									B	B	034	E032R	B	B	B	B							
29									B	C	C	C	C	C	C	C	C	C						
30					E				023	028	029	031	032	031		026	024		018	020	017		E	018
31	E	018	E						022	027	028					025								
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

foEs

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 5

IONOSPHERIC DATA

Jan. 1966 | f-min 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	E	017	017	020	E034S	017	018	017	017	017	017	E	E	E	E	E	E
2	E	E	E	E	E	E	E	E	E	017	017	E035S	017	017	E031S	017	E	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E	E	E	017	017	017	017	017	E	E	017	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E	E	E	017	017	017	E	E	E	017	E	E	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E
6	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	E	E	E	E	E	E	E	E
7	E	E	E	E	E	E	E	E	017	017	017	017	017	017	018	018	017	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	E	017	017	E	018	017	017	017	E	E	E	E	E	E	E	E	E
9	E	E	E	E	E	E	E	E	E	E	017	017	018	018	017	E	017	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E	E	E	017	017	018	018	017	017	017	017	E	E	E	E	E	E	E
11	E	E	E	E	E	E	E	E	E	E	017	017	017	017	017	E	E	E	E	E	E	E	E	E
12	E	E	E	E	E	E	E	E	E	E	019	017	017	017	E	E	017	E	E	E	E	E	E	E
13	E	E	E	E	E	E	E	E	E	E	017	E	017	017	017	017	E	E	E	E	E	E	E	E
14	E	E	E	E	E	E	E	E	E	E	017	017	017	017	E	017	017	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E	E	E	017	E	018	017	017	017	E	E	E	E	E	E	E	E	E
16	E	E	E	E	E	E	E	E	E	017	017	017	017	017	E	E	E	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	E	E	017	018	017	018	E030S	017	017	E	E	E	E	E	E	E	E
18	E	E	E	E	E	E	E	E	E	E	017	017	017	018	017	017	E	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	E	017	022	018	018	018	018	018	017	017	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	E	017	017	017	018	018	018	018	017	E	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E	E	E	E040S	017	017	019	018	018	018S	017	E	E	E	E	E	E	E
22	E	E	E	E	E	E	E	E	017	017	018	017	017	017	017	017	017	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	E	017	017	017	017	021	019	019	023	017	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	E	017	017	018	018	019	018	018	017	017	017	E	E	E	E	E	E
25	E	E	E	E	E	E	E	E	017	017	017	017	018	017	018	017	017	E	E	C	C	E	E	E
26	E	E	E	E	E	E	E	E	E	017	017	020	022	022	018	017	018	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	E	017	017	018	022	031	029	022	018	017	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E	E	021	026	034	031	030	035	034	027	022	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	E	022	C	C	C	C	C	C	C	C	C	E	E	E	E	E	E
30	E	E	E	E	E	E	E	E	017	017	017	018	018	017	017	017	017	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	E	017	017	017	017	017	018	017	017	E	E	E	E	E	E	E	E
No.	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	31	30	30	31	31	31
Median	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	E	E	E	E	E	E	E
U. Q.																								
L. Q.																								
Q. R.																								

f-min

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jan. 1966 | M(3000) F2 0.01 | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43. 5'N, Long. 140° 08. 2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	310	305	310	325	340	325	355	370	370	375	335	I360R	370	365	350	360	360	355R	330	350	345	360	305	295
2	330S	290F	F	325F	360F	310	350	355	370	370	370	360	375	340	I370R	325H	360	335	335	325	315	305	300F	300F
3	305F	310F	300	305	310	365	345	350	380	375	335	345	375	360	365	360	385	305	325	345	330	315	295	305
4	305	300	290	320	325	335	330	360	360	335H	320	I360R	340H	320H	360	360V	370	330	315	330	350	320	305	320F
5	295F	305F	305F	310	345	330	330	365	385	350	345	350	345	360	305H	370	380	360	325	350	350	295	295	305S
6	285F	295	285	305S	370	410	300	340	375	310	325	345	340	355	365	355H	355	345	320	320	315	300	305	300
7	295V	305	295	295	335	325	335	355	370	355	345	355	355	370	350S	365	370	305H	325	325	320	330	300	FS
8	315F	310	320	320S	345S	335	325	335	380	365	355	355	335H	365	345	360	365	370	305	335	320	320	285	300
9	290	290	285F	290S	340S	355S	FS	360	360	345	315	360	345	330H	360	340H	365	360	355	330F	345	345	F	F
10	F	F	F	F	F	F	345	355	355H	360	350H	340	365	370	345	355	370	305H	315	335	335	340S	FS	F
11	300	340	305	325	335	345	340	345	375	355	I360R	360	365	I365R	350	365	365	365	300F	345S	315S	295F	FS	FS
12	FS	FS	FS	FS	FS	340	285	350	360	340H	U355R	345S	360	350H	I365A	360	340	355	365	285	335R	310H	295H	285
13	290H	315	305	305F	305	310	310F	360	380	360	340	360	I350R	395	375	370	355	360	310	320	335	FS	FS	FS
14	F	F	F	FS	F	315F	325F	355	380	375	370	355	365	345	355S	350	370	360	320	325	345	305	F	285F
15	305S	295	300S	280F	300F	325F	330F	335S	370	360	365	360	I355R	360	350	365	385	385	330	330	305	300S	300	290
16	FS	320	F	FS	350S	F	325	370	345H	365	365	360	380	370	365	350	340H	365	315	305	340	315	310	290
17	305	295	305	305	310	340	330	360	365	370H	315H	370	360	380	350	350	390	345	295	305	335	330	300	295F
18	290S	I290S	295	315	305	305	330	355	370	380	365	320	360	345	360	340	360	350	310	335	350S	325S	290	FS
19	305S	295S	300	305	305	280	335H	370	365	345	345	365	340H	365	320H	335	370	320	340	A	A	A	280S	300S
20	320S	295S	290F	295S	315S	310F	325F	I360R	375	380	340	345	355	350H	355H	345	365	335	345	335	I330A	270	265	290
21	285	290	295	300	295	315	350	330	360	320	360	365H	350	355	360	340	360	340	I340R	315	A	A	280F	I290R
22	290	310	295	330F	295	330	305	340	365	350	355	330	360	350	380	360	375	335	285	315	340S	305	260	285
23	290	300F	F	F	365F	345F	350	335	340	345	340H	355	340	365	350H	365	360	340	340	330	340	305Z	F	295F
24	315F	295	305	FS	320	305	320	330S	375	340	355	355	350	365	370	355	350	370	335	360	360	325	340	315
25	330	290	285	285F	285	300	360	365	370	365	340	355	340	350H	360H	385	I380R	325Z	335	I315C	I340C	360	315	285
26	280	300	305	335	I355R	I320R	345	355	390	365	350	340	340	360	335	375H	375	325H	325	345	335	320	290	310F
27	285F	295F	300S	320	345	305F	300F	355	345	355	350	335	365	355	365H	340	350H	355	330	300	365	350	285	I290R
28	295	290	305	305	320	330	335	360	365	365	355	365	375	365	365	335	355	365	340	340	320	320	320	305
29	295S	295	295	305	300H	350F	360	355	365	C	C	C	C	C	C	C	C	C	315	315	345	285	295	290F
30	290F	300	305	305	285	310	330	335	355	360	345	370	370	335	345H	370	380	335	355	325	305	315	310	305
31	F	F	F	F	310F	325	325	360	380	375	365	345	365	360	355	355	375	320	330	325	300	300F	295F	FS
No.	26	27	24	24	28	29	30	31	31	30	30	30	30	30	30	30	30	30	31	30	29	28	25	24
Median	295	295	300	305	320	325	330	355	370	360	350	355	360	360	360	360	365	345	325	330	335	315	295	295
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F2

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 7

IONOSPHERIC DATA

Jan. 1966 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	415L	460									
2									L	430	450	L	L	L										
3										LH	LH	L	L	L	L	430								
4										445	L	375L	LH	L	L	L								
5										L	L	L	L	L	380	L	410							
6									445	440	LH	390	410L	LH	L	L								
7									430	430	390L	375	405L	L	L									
8										LH	L	LH	360L	L	390L									
9											L	380L	L	L	L									
10									415		410L	L	L	L	L	L								
11										L	375	L	L	L	415L	LH								
12										L		410	450	L	I405A	395								
13										L	380L	LH	390L	L	L									
14									L	L	L	400L	385L	375	L									
15										L	400L	405	405	400L	L									
16										420	L	L	375L	L	395L	L								
17									415L	435	430	L	380L	390L	L									
18									L	L	LH	L	400L	405L	LH	425								
19									435	425	L	L	380	385	405	405								
20									410L	445	365	375L	L	395L	L	L	L							
21									420	I450S	L	380	380L	L	L	A								
22										A	395L	360L	385L	370	L	L								
23										L	390	370L	L	415	425									
24										405L	400L	380	L	L	L									
25									415L	LH	LH	L	390L	L	L	L								
26									445	450H	LH	375L	L	L	L	415								
27										L	390L	375L	370L	375	L									
28									440	LH	375L	370L	L	375L	L	415L								
29									420	C	C	C	C	C	C	C								
30										L	350L	385	375	380L	L	L								
31										440	L	395L	400L	LH	395L	L	L							
No.									11	12	14	17	17	12	9	6	1							
Median									420	440	390L	380L	385L	390L	405	415	410							
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Jan. 1966 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											280L	255	245	240	255									
2									215	220	230	245	235	240										
3										235	255	250	245	250	250	240								
4										240	250H	260	250	245	245	240								
5										230	270	250	250	245	260	225	215							
6									230	230	245	250	245	250	245	240								
7									225	230	260	255	245	240	235									
8										240	245	245	295	235	245									
9											260	245	245	245	240									
10									225		240	265	250	240	280L	235								
11										250	285	255	240	240	240	240								
12										235		265	240	240	I235A	245								
13										220	285	245	240	230	240									
14									220	230	230	250	240	280	250									
15										245	240	245	260	225	240									
16										230	240	250	240	250	245	250								
17									230	225	245	245	245	235	235									
18									225	230	240	270	245	250	245	240								
19									220	240	260	245	260	245	240	265								
20									215	205	285	255	260	245	250	230	210							
21									215	265	245	235	255	240	240	230								
22										230	250	275	245	260	230	245								
23										245	255	245	245	240	235									
24										240H	245	250	255	245	250									
25									230	240	245	245	255	240	235	240								
26									205	245	255	290	275	250	245	240								
27										230	280	265	245	250	250									
28									220	245	270	250	245	245	245	240								
29									220	C	C	C	C	C	C	C								
30										230	280	245	250	270	240	225								
31										240	235	250	245	245	245	245	220							
No.									14	27	29	30	30	30	29	18	3							
Median									220	235	250	250	245	245	245	240	215							
U. Q.																								
L. Q.																								
Q. R.																								

h'F2

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 9

IONOSPHERIC DATA

Jan. 1966 | h'F | km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	290	300	290	255	240	280	230	200	210H	225	250	240	240	215	180	240H	215	200	I260A	260	235	205	295	285
2	235	280	280	255	220	240	240	205	220	195	180	I185S	180	205	230	230	215H	205	225	240	245	265	305	290
3	280	280	300	280	265	230	245	240	225	195H	180H	245	190H	205	210	200	205	280	235	225	230	255	285	295
4	275	295	295	255	245	240	240	205	215	195	180	225	185H	230	245	210	200	220	245	225	235	260	290	300
5	260	290	295	280	230	240	270	205	205	190H	250	240	235	245	245	225	210	210	235	230	220	E280E	290	275
6	305	295	305	270	210	195	E320E	245	180	195	195H	235	220	190H	200	235	210	210	260	255	235	295	280	305
7	295	295	295	280	245	245	255	230	200	195	245	220	220	240	220	245	220	200H	245	240	245	245	285	295
8	270	290	270	245	235	235	245	240	230	190H	240	190H	245	245	230	240	220	195	255	235	250	245	305	290
9	295	295	315	295	235	200	240	205	220	240	245	245	240	225	230	210	215	225	215	245	240	230	280	280
10	270	255	280	260	255	235	230	225	200	225	190H	265	255	240	205	235	215	205	260	255	230	240	305	325
11	295	260	285	245	245	230	270	240	230	240	205H	235	190H	210	200	200	215	200	245	215	250	225	255	280
12	295	290	280	285	240	240	E350E	230	210	240	210	195	195	245	I220A	200	235	205	235	255A	230	250	205	310
13	280	270	290	300	275	290	255	210	210	200	220	195	195H	245	210	220	230	195	E295E	245	225	220	255	290
14	240	255	270	300	240	280	245	220	220	210	200	200	195H	195	200H	230	215	205	255	255	225	250	300	280
15	250	290	285	305	290	270	270	230	230	200H	215	185H	200	195	215	220	210	195	260	225	250	250A	250	300
16	280	280	285	245	230	240	245	210	215	185	210	240	235	240	215	235	215	210	E255E	280	220	245	280	300
17	290	290	285	290	265	245	250	225	215	195	190	245	220	220	205	250	215	205	300	245	250	245	A	300
18	300	295	300	255	265	280	255	230	205	200	195	210	230	200	190H	190	220	215	245	230	235	245	295	295
19	310	315	295	270	255	330	235	205	200	225	245	250	230	245	210	200	210	I210A	225	A	A	A	325	255
20	260	I300A	320	280	255	260	245	205	200	190	245	190	230	225	245	220	220	210	210	I235A	I245A	E345E	325	295
21	330	300	300	240	280	260	245	230	215	I190S	265	220	225	240	225	A	235	230	230	240	A	A	320	I315A
22	310	I290A	290	250	295	265	270	235	230	A	235	220	180H	215	A	245	220	205	295	275	I250A	260	355	305
23	330A	305	275	245	240	245	240	220	190H	I230A	215	200	195H	195	200	240	225	225	220	240	240	255	365	300
24	295	300	I295A	260	280	285	275	240	230	210	225	180H	195	245	245	230	240	210	245	225	245	265	290	305
25	290	300	305	320	305	290	245	230	205	180H	195H	235	195	230	215	240	230	210H	205	I235C	I230C	240	265	325
26	315	290	275	240	210	I220A	230	240	190	180H	180H	240	220	205	205	205	210	195	220	225	230	260	305	310
27	305	295	285	250	240	E290E	E320E	245	235	205	215	220	195	225	200	230	225	220	255	250	230	240	340	320
28	295	295	290	285	260	245	245	205	200	195H	245	245	245	225	240	200	230	215	220	240	230	250	260	280
29	290	290	290	280	270	235	210	210	195	C	C	C	C	C	C	C	C	C	235	230	225	330	285	300
30	320	300	295	270	305	280	255	210	225	220	200H	235	210	225	225	235	210	210	240	I240A	230	245	255	280
31	280	285	275	280	280	245	240	220	220	200	200H	200	195	185H	210	220	220	210	230	220	245	255	280	245
No.	31	31	31	31	31	31	31	31	31	29	30	30	30	30	29	29	30	30	31	30	29	29	30	31
Median	290	290	290	270	255	245	245	225	215	200	210	220	215	225	215	230	215	210	240	240	235	250	290	295
U. Q.																								
L. Q.																								
Q. R.																								

h'F

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 10

IONOSPHERIC DATA

Jan. 1966 | $h'Es$ km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5′N | Long. 140° 08.2′E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	E	145	150	145	S	140	135	G	G	140	120	110	105	E	E	E	E
2	E	E	E	E	E	E	E	E	105	G	G	S	G	G	S	145	E	E	E	E	110	E	E	105
3	E	E	E	E	E	E	115	110	110	110	G	150	G	125	100	145	100	120	E	120	E	E	E	E
4	E	110	105	105	105	E	E	105	G	G	110	145	G	G	145	140	105	E	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	130	120	165	G	E165G	E180G	160	140	B	E	E	E	105	105	105	105
6	E	105	115	115	E	E	110	110	110	105	G	155	175	G	G	155	105	105	100	100	E	E	E	E
7	E	E	E	E	E	E	E	E	G	105	165	150	145	160	150	145	115	100	100	100	100	E	E	E
8	E	E	E	E	120	E	E	E	150	G	160	G	155	145	145	135	150	E	E	145	105	105	105	E
9	E	E	E	E	E	E	E	E	110	145	145	145	145	E150G	135	145	120	110	120	105	105	105	100	E
10	E	E	E	E	E	E	E	E	140	110	125	155	155	155	G	155	140	105	105	105	105	E	130	E
11	E	105	110	E	E	E	E	E	125	155	140	125	135	G	145	135	G	E	E	130	125	E	140	125
12	E	E	E	E	E	E	E	110	155	145	145	140	140	155	110	140	120	115	E	130	105	110	E	E
13	E	105	105	E	E	E	E	E	130	130	140	G	G	165	120	150	155	E	E	E	E	E	E	E
14	110	130	105	105	E	E	E	E	115	110	115	G	G	G	G	145	145	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E	E	145	110	155	G	G	130	100	100	100	100	E	E	E	105	E	E
16	105	105	E	E	105	E	E	E	G	G	105	130	120	G	G	125	165	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	E	155	140	120	165	G	S	105	105	145	E	E	100	E	E	105	E
18	E	E	E	E	E	E	E	105	120	120	110	105	105	G	G	G	150	E	E	E	E	E	115	110
19	E	E	E	E	105	E	E	E	145	110	G	165	145	130	125	115	110	105	105	105	100	105	105	E
20	115	110	105	105	110	105	110	110	145	120	130	120	E165G	135	130	125	G	E	105	105	100	100	105	105
21	110	E	110	E	E	130	E	E	G	S	155	G	E155G	E135G	E145G	120	120	110	110	105	100	105	110	105
22	105	120	115	110	115	120	E	110	175	160	155	145	G	155	150	145	145	E	155	145	130	105	105	100
23	100	105	E	E	125	E	120	120	170	110	110	110	G	G	G	E160G	140	E	100	E	100	E	115	E
24	E	105	100	100	E	E	E	E	145	145	G	G	G	100	E170G	145	100	100	100	E	110	115	110	105
25	E	E	E	E	E	E	E	E	G	115	115	155	G	G	G	G	G	100	E	C	C	E	E	E
26	E	E	E	100	100	100	E	E	110	105	G	140	G	G	G	G	B	E	105	E	100	E	110	E
27	E	105	E	E	E	E	E	110	105	105	145	140	B	B	G	G	135	E	105	E	105	105	E	E
28	100	E	E	E	E	E	E	E	G	B	B	145	140	B	B	B	B	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	E	B	C	C	C	C	C	C	C	C	C	E	E	E	E	E	E
30	E	E	E	E	110	E	E	E	150	145	155	135	140	135	G	140	120	E	115	105	110	E	110	110
31	105	115	110	E	E	E	E	E	155	120	120	G	G	G	G	E145G	G	E	E	E	E	E	E	E
No.	8	12	10	7	9	4	4	9	24	24	23	20	16	16	16	24	22	12	14	15	17	11	15	9
Median	105	105	110	105	110	110	110	110	140	120	140	145	140	140	135	140	130	105	105	105	105	105	110	105
U. Q.																								
L. Q.																								
Q. R.																								

$h'Es$

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 11

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IONOSPHERIC DATA

Jan. 1966 | Types of Es | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									h 1	h 1	h2		h 1	h			h2	f2	f2	f				
2									1							h					f			f
3							f2	13	12	c		h2		h 12	12 h	h	1	f		f				
4		f	f2	f	f			1			12	h			h	h2	1							
5									h	h	h		h	h	h	h2					f	f2	f2	f
6		f2	f2	f2			f	1	1	1 h		h	h			h 1	12	f2	f2	f2				
7										12	h	h	h	h	h2	h	c2	f	f2	f2	f			
8					f				h3 1		h 1		h2	h2	h	h	h4			f	f2	f2	f	
9									1	h 1	h2	h2	h	h	h	h2	c3	f	f	f2	f	f	f	
10									h2	1	h 1	h	h	h		h	h2	f2	f2	f2 f	f2		f	
11		f	f2						c h	h2	h2	h2	h		h	h2				f	f		f	f2
12								1	h	h 1	h	h 1	h2	h	c4	h	c2	f3		f3 f	f2	f		
13		f2	f						h2	h3	h2			h2	h	h 1	h2							
14	f2	f	f2	f2					c2	c	h					h	h2							
15									h2	1	h			h	12	12	12	f				f3		
16	f	f2			f						12	h	h			h	h							
17									h h	h	h	h			1	12	h2			f2			f	
18								1	h	c	1	1	1				h2						f	f2
19					f2				h	1		h h	h2	h	h2	c2	12	f2	f	f3	f3	f3	f2	
20	f2	f2	f2	f2	f2	f2	f2	12	h	h	h h	c	h	h	h	h			f3	f3	f2	f2	f2	f
21	f		f			f					h2		h	h	h	h	c	f2	f2	f2	f4	f3	f2	f3
22	f2	f5 f	f2	f5	f2	f2		1	h2	h	h	h2		h	h2 1	h 1	h2		f f	f2	f3 f	f	f2	f
23	f2	f2			f		f	h	h	12	1	1				h	h		f		f		f	
24		f2	f2	f2					h2	h				1	h	h	12	f	f		f2	f	f	f
25										c	h	h						f						
26				f2	f	f			1	1		h							f		f2		f	
27		f						1	1	1	h	h					h		f		f2	f		
28	f											h	h											
29																								
30					f2				h	h	h	h	h	h		h	c3		f2	f4	f2		f2	f4
31	f3	f2	f2						h	h	h					h								
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Types of Es

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Jan. 1966 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	024	025	025	028	031	017	018	037	057	051H	048	071	070R	057	051R	058	056	034	026	030	035S	028	024	030
2	029	031F	034	034S	034S	025	029	046S	060	064	058	059	062	059	056	058	056	037	027	027	027	025	026	028F
3	028	028	028	029	028	024	023	043	055	057	053	063	071	064	063	060	047	033	037	038	037	023	025	028
4	029	028	028	031	030	021	024	043	046	049	058	075	U077R	058	065	064	049	035S	027	034S	034S	026S	023	024
5	028	028	028	029	032	021	024	043	050	046	063	071	068	063	057	U078S	053	037	028	031	026	024H	024	028
6	029	029	028	032	035S	021	017	039	062	068	067	075	065	062	065	061	054	037	025	026	030	024	028	030
7	030	032	031	031	034	023	023	J041S	058	060	060	068	067	067	060	060S	055	036	031	032	029	025	026S	U028S
8	029	029	032	035	031	A	020	041	060	073	058	061	059	073	062	054	068	045	027	035	031	026	025	027
9	029	030	029	031	038	027	020	046	051	053	066	070	068	058	060H	055	046V	036	040	027	030	J024R	030	028F
10	030	031	033F	032F	F	F	029F	041	050	061	I060C	062	U074S	072S	056	061	057	037	027	032S	027	025	027	027
11	028	028	030	029	031	U023S	020	043	056	056	062	065	C	C	C	059	055	039S	027	028	025	029F	029	U033F
12	F	029F	030F	028F	030	020	017	036	054	067	055	065	065	067	059	052	051	043	028	027	030S	025	025	023
13	026	025	026	025	U025S	023	024	047	051	053	052	065	065	064	055	051	053	042	026	028	033S	031F	U026F	U024F
14	U028F	024S	025S	026F	U031F	021F	022S	044	060S	061	U072S	068H	060R	061	067	061	059	038	025	031	036	025	023	024
15	025	025	028	028	031	021	022	046	055	058	053	056	069	060	065R	061	057	046	022	027	033	026	023	026S
16	027F	025	026	025	028S	022	020S	044	058	060	052	062	074S	056	073S	056	060	051	023	025	036	026	024	027
17	029	029	028	030	031	027	023	043	056	056	054	068R	U077R	062	056	056	066	043	023	029	030	031	022	026
18	028	028	028	028	029	027	027S	050	055	053	I058C	068	068	064	066	062	056	046	033	035	U034S	023	023	026
19	025	026	026	027	026	024	030	044	050	053	063	073	074	J072R	072	060	A	A	035	037	025	023	I029A	031
20	028	028	030	031	032	029	029	052	054	057	049H	072	072	073	069	081	054	044	A	035	I028A	I021A	U025S	028
21	029	030	032	033	030	031	024	U050S	056	061	091	093	U068R	078	067	056	068	048	U044R	I026A	025	028	I028A	030
22	031	031	030	030	024S	024	021	045	U064R	062	080	079	076	U072R	067	060	058	045	I029A	035	046	020	025	027
23	029	028	029	035	020	021	022	047S	065R	073	082	093	071	066	060	U065R	054	046R	037	031	031	022	025	026F
24	028	027	026S	030F	024	023	023	047	U071S	070	070R	081	086	074	060	065R	059	049	025	043S	029	025	028	028
25	030	028	029	030	030	029	031	050	058	068	066	080	083	074	070	060	059	057	041	033	030	029	023	U024R
26	025	027	030	031	031	A	022	040	U058S	046	058	063	073S	069	068	062	050	043	032	032	032	023	025	029
27	030F	030F	030	028	027	019	016	046	060	056	059	U074R	072S	074	062	058	056	045	039	037	032	027	022	024
28	026	028	028	028	027	026	024	041S	050	052	055H	072	075H	066	U053R	058	057	050	036	026	026	022	023	024
29	025	027	028	028	028	029	022	039	U049R	050	055	070	062	063	067	057	I050C	039	033	026	030	023	024	026S
30	025	026	028	027	025	026	024	045	051	055	058	U080R	067	059	058	056	049R	043	031	031	025	U024S	027	029
31	032S	030F	030S	026F	027	026	025	044	U050R	051	I054C	058	059	058	060	057	U052R	041S	036	034	024	028	U027S	U026F
No.	30	31	31	31	30	28	31	31	31	31	31	31	30	30	30	31	30	30	30	31	31	31	31	31
Median	028	028	028	029	030	024	023	044	056	057	058	070	070	064	062	060	056	043	028	031	030	025	025	027
U. Q.	029	030	030	031	031	026	024	046	060	062	066	075	074	072	067	061	058	046	036	035	033	027	027	028
L. Q.	026	027	028	028	027	021	020	041	051	053	054	063	065	060	058	056	052	037	026	027	027	022	022	026
Q. R.	003	003	002	003	004	005	004	005	009	009	012	012	009	012	009	005	006	009	010	008	006	005	005	002

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

foF2

K 1

IONOSPHERIC DATA

Jan. 1966 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												L	420L	L	L									
2										L	L	L	L	L		L								
3										L	L	420	L	L	L	L								
4											380L	400L	410L	L	L									
5									270L		U410L	410	U420L	L	L	L								
6									L	L	L	420L	410L	U420L	L									
7										340L	430L	L	L	390L	400L									
8										L	L	L	L	L	L	L								
9										L	L	L	L	L	L									
10										U390L	C	410L	U420L	L	L	L								
11										L	420L	420L	C	C	C	L								
12										L	L	420L	420L	420L	L									
13											L	430L		L		L								
14										L	L	420L	430L	430L	400L									
15										L	L	420L	420L	L	L	L								
16									L	L	L	L	L	L	360L	L								
17										L	L	430L	L	L	400L									
18									L	L	C	420L	R	L	L	L								
19										L	L	410L	L	430L	A		A							
20									L			L	L	U430L	420L	L								
21											L	L	430L	L	U410L									
22												430L	440L	420L	L	L								
23										L	L	L	420L	410L		L								
24										L	480L	430L	440L	L	L	350L								
25									L	350L	L	430L	420L	420L	L	L								
26										340L	L	430L	440L	410L	410L	L								
27										L	420L	430L	440L	430L	L	L	L							
28									L			430L	420L	L	L	L								
29									300L		L	430	L	420L	L	330L	C							
30										L	L	430L	440L	410L	L	L	L							
31									L		C	420L	430L	410L		L								
No									2	4	6	22	18	14	7	2								
Median									280L	340L	420L	420L	420L	420L	400L	340L								
U. Q.																								
L. Q.																								
Q. R.																								

foF1

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 2

IONOSPHERIC DATA

Jan. 1966 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								A	215	I250A	285	I300R	305	295	I280R	270	B							
2								B	210	255R	290	300	300	280	260	230	B							
3								A	A	250	I280A	I290A	295	280	I270A	I250A	180							
4								B	210	250	A	A	305	290	I270R	235	B							
5								B	I220A	I255R	290	300	300	300	265	250	B							
6								A	I220A	260	290	300	300	290	275	230	175							
7								B	200	235	280	285	300	280	270	235	175							
8								B	200	255	I280R	300	295	A	A	A	B							
9								B	190	280	290	300	305	290	280	240	B	B						
10								B	225H	250	I280C	295	300	295	280	240	B	B						
11								A	I220R	265	300	305	C	C	C	A	A	B						
12								B	205	240	280	310	310	305	280	245	I180A	B						
13								A	I220R	I270A	I300A	315	305	300	265	I245A	190	B						
14								B	230	255	I295R	315R	315R	I315R	300	255	195	B						
15								B	230	A	R	320	320	300	285	250	195	B						
16								B	225	275	295	310	300	300	300	260	180	B						
17								B	230	255	285	I300A	I320A	310	290	260	A	B						
18								B	A	A	I300C	310	315	310	285	250	200	B						
19								B	230	A	320	320	325	320	290	A	A	B						
20								B	A	250	290	I300A	305	305	290	I270R	B	B						
21								B	I200R	250	295	305	320	300	I290A	A	B	B						
22								B	210	255	290	310	315	300	280	A	B	B						
23								B	220	245	300	310	320	310	280	I260B	205	B						
24								B	220	260	295	305	310	300	295	255	I210A	B						
25								B	205	245	285	I305R	320	310	300	260	205	B						
26								B	I210R	I260A	300	320	310	310	300	I260R	210	B						
27								B	205	250	290	305	305	295	280	255	B	B						
28								B	R	250	285	I300R	I300B	I300B	290	260	B	B						
29								B	B	B	B	B	I310R	I300B	I290R	I260R	C	B						
30								B	190	I245B	290	315	305	310	285	275	220	B						
31								145	220	250	I290C	320R	315R	I310R	285R	A	220R	B						
No.								1	26	27	28	29	30	29	29	25	15							
Median								145	220	250	290	305	305	300	285	255	195							
U. Q.																								
L. Q.																								
Q. R.																								

foE

Sweep 1.0 Mc to 20.0Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 3

IONOSPHERIC DATA

Jan. 1966 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E014B	E013B	E014B	E013B	E013B	E013B	020	021	027	031	036	034	J039	040	G	G	023	024	E013B	023	J025	E016S	E016S	E016S
2	E013B	E013B	E013B	E012B	E011B	E011B	E014B	E016B	J028	G	G	G	G	G	G	027	021	E015S	E013B	E016S	E016S	E013B	J025	020
3	024M	E013B	E011B	018	E011B	J018	J043	J027	J038	023G	J037	J037	034	J028G	J036	J030	J024	J038	E015S	E012B	E015S	J030	J028	J020
4	021M	J018	J024	J023	J023	J024	020	E014B	G	G	J037	J030	036	032	032	031	J025	E016S	E015S	E014S	E015S	E013S	E014S	E013S
5	E016S	E013S	E015S	E011B	E011B	E015S	E015S	E016B	J023	032	033	033	032	032	031	G	023	E014B	E015S	E013B	E016S	E016S	E014B	E015S
6	J020	024	021	J023	J032	J025	J036	J030	J025	G	G	034	G	G	G	029	J028	E014B	020M	E012B	E013B	E013B	E016S	E015S
7	E016S	E013B	E013B	E011B	E011B	E014B	E014B	E015B	G	G	G	034	G	G	036	036	030	J054	J030	022	E013B	J029	J024	E016S
8	J026	021	E013B	020	024	032	E015B	020	G	G	033	035	040	J040	J038	J030	E017B	J025	J028	E013B	E014B	E013B	E017S	E015S
9	E013B	E013B	E013B	E012B	E014B	E013B	E015B	020	G	G	034	034	033	G	G	G	024	E015B	025M	J023	022	021M	E015S	E012B
10	E012B	E011B	021	E011B	E	E012B	E013B	E013B	G	027	C	036	036	034	032	032	J025	J025	J031	J031	J026	J036	J029	E014B
11	E014B	023	J025	024	021	E013B	022	018	029	029	G	032	C	C	C	J030	J023	020	025	E014B	022	E013B	E013B	021
12	J023	E013B	E013B	E011B	020	E	E014B	018	G	031	031	037	G	G	032	G	022	021	E016S	E013B	020	E015S	024	019
13	J040	022	J024	023	022	E011B	E013B	J024	030	J028	J035	G	G	G	G	J030	025	024	020	022	020	E013B	E013B	E011B
14	E011B	024	J032	J025	023	021	020	018	G	G	G	G	032	G	G	G	G	E014B	E014B	E015S	024	E015S	024	J019
15	024	J038	J026	024	022	020	E015B	018	G	J035	G	G	G	G	G	G	024	025	024	E012B	E013B	E015S	E015S	E015S
16	E015S	E015S	E013B	E013B	E013B	019	E015B	E017B	025	G	G	021G	036	G	G	G	G	022	023	E015S	E013B	E017S	E014B	E017S
17	E013B	E015S	E013B	023	019	021	E014B	E017B	G	G	033	J037	036	025G	G	G	J030	024	J023	021	E013B	E013B	019	E016S
18	019	E013B	E011B	E012B	E015B	E011B	E014B	E014B	J025	J030	C	G	034	G	G	J040	025	E015B	E013B	E017S	E013B	E014B	E012B	J036
19	E014B	E015B	E014B	E013B	017	E013B	E013B	E015B	030	032	037	036	037	039	J052	J038	J077	J088	J025	E012B	J023	J034	J035F	J040
20	J018	027	J026	J023	021M	E012B	E013B	E015B	025	G	036	J040	034	033	031	031	J028	036	J045	025	033	J028	023	E013B
21	J026	J025	J026	J026	J023	020	E015B	E015B	G	G	039	037	J029G	J038	J034	036	J036	J044	J028	J043	J026	J028	J043	J030
22	E013B	J039	J038	J025	025	E013B	E015B	E015B	032	034	042	041	G	G	G	035	J026	J028	J031	J028	J026	E014B	019	J026
23	J025	J026	J026	E013B	019	020	E013B	018	021G	G	G	G	G	G	G	E026B	G	024	J030	J026	J024	023	020	J018
24	019	J030	J033	025	E012B	023	E014B	E014B	029	029	033	G	033	G	G	029	030	J038	023	J030	E017S	E012B	J027	J038
25	J031	J025	E015B	E013B	024	023	E013B	E015B	G	G	036	G	G	034	G	G	G	J030	J050	J040	E014B	J018	J020	019
26	E016S	E014B	024	024	023	J026	023	E014B	G	J030	033	033	033	G	G	G	G	E015B	J023	025	025	E016S	E014B	E015S
27	E013B	E013B	J023	J028	020	E013B	E012B	E013B	G	G	G	035	033	031	030	G	E020B	E015B	023	J019	022	E015S	019	E016S
28	J024	019	E014B	023	020	E012B	E013B	E016B	G	032	035	036	033	E033B	G	029	E025B	E016B	E014B	E013B	E012B	018	E015S	E012B
29	E014B	E015B	E013B	E012B	E013B	E012B	E013B	E017B	E025B	E033B	E030B	E034B	G	E032B	G	G	C	E016B	E015S	E013B	E014B	E015S	E014B	E014B
30	E015S	E013B	E015B	E013B	E013B	E014B	E013B	E015B	G	E016B	033	G	035	033	031	G	G	E015B	E016S	E015S	021	020	E013B	E014B
31	019	022	J023	023	E	020	E013B	G	025	G	C	G	G	G	G	033	G	E012B	E014B	E014B	E013B	E013B	020	E012B
No.	31	31	31	31	31	31	31	31	31	31	28	31	30	30	30	31	30	31	31	31	31	31	31	31
Median	E016	E015	E015	020	019	E014	E014B	E016B	G	G	033	034	033	G	G	029	024	022	023	E016	E017	E015	019	E016
U. Q.	024	024	025	024	023	021	E015	018	027	030	036	036	035	033	032	031	026	028	028	025	024	021	024	020
L. Q.	E014	E013	E013	E012	E013	E012	E013	E015	G	G	G	G	G	G	G	G	G	E015	E015	E013	E013	E013	E014	E014
Q. R.	D010	D011	D012	D012	D010	D009		D003										D013	D013	D012	D011	D008	D010	D006

foEs

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jan. 1966 | **f_bE_s** | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	E	019	026	030G	034	033	034	038			022	016	B	E	E	S	S	S
2	B	B	B	B	B	B	B	B	024							026	020	S	B	S	S	B	E	E
3	017	B	B	E	B	E	018	026	026	022G	029	033	034	025G	033	025	G	018	S	B	S	017	016	E
4	E	016	014	E	E	E	E	B			029	029	034	030	030	029	022	S	S	S	S	S	S	S
5	S	S	S	B	B	S	S	B	021	031	033	032	031	031	030		022	B	S	B	S	S	B	S
6	015	E	E	E	015	016	015	019	025			034				029	G	B	E	B	B	B	S	S
7	S	B	B	B	B	B	B	B							035	029	027	018	017	017	B	015	016	S
8	016	E	B	E	013	A	B	018			032	034	037	033	033	027	B	017	017	B	B	B	S	S
9	B	B	B	B	B	B	B	016			033	033	032				022	B	E	E	E	E	S	B
10	B	B	E	B		B	B	B		026	C	035	035	033	031	027	021	017	025	028	020	021	021	B
11	B	E	015	013	E	B	E	017	026	026		032	C	C	C	026	020	G	016	B	E	B	B	E
12	015	B	B	B	E		B	017		030	030	035			030		022	G	S	B	E	S	E	E
13	E	E	015	E	E	B	B	020	025	025	037					027	023	016	E	E	E	B	B	B
14	B	E	019	015	E	E	E	017					032					B	B	S	E	S	E	016
15	016	017	018	013	016	E	B	017		030							022	016	E	B	B	S	S	S
16	S	B	B	B	B	E	B	B	023			021G	034					G	E	S	B	S	B	S
17	B	S	B	E	E	E	B	B			032	034	033	025G			025	016	E	E	B	B	E	S
18	E	B	B	B	B	B	B	B	023	028	C		034			027	023	B	B	S	B	B	B	019
19	B	B	B	B	E	B	B	B	027	031	036	035	037	034	044	036	A	A	E	B	E	016	A	025
20	015	016	016	E	E	B	B	B	025		030	037	034	032	030	030	028	032	A	017	A	A	E	B
21	014	015	014	017	015	E	B	B			037	036	029G	032	032	033	030	037	016	A	015	017	A	E
22	B	021	015	015	E	B	B	B	031	033	040	040				027	022	017	A	017	017	B	017	017
23	017	016	019	B	E	E	B	017	021G							B		018	026	017	016	016	E	016
24	E	016	017	013	B	E	B	B	028	028	032		033			028	026	026	016	026	S	B	016	E
25	019	017	B	B	016	E	B	B			032			033				021	028	016	B	017	017	018
26	S	B	E	015	E	A	E	B		027	032	033	032					B	016	E	E	S	B	S
27	B	B	013	012	E	B	B	B				034	033	031	030		B	B	E	E	E	S	E	S
28	017	016	B	016	E	B	B	B		031	035	036	E033R	B		029	B	B	B	B	B	E	S	B
29	B	B	B	B	B	B	B	B	B	B	B	B		B			C	B	S	B	B	S	B	B
30	S	B	B	B	B	B	B	B		B	032		033	032	030			B	S	S	E	E	B	B
31	015	014	014	E		E	B		024		C					029		B	B	B	B	B	E	B
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

f_bE_s | Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

K 5

IONOSPHERIC DATA

Jan. 1966 | f-min | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	014	013	014	013	013	013	014	013	015	017	019	016	017	021	018	020	017	013	013	E016S	E015S	E016S	E016S	E016S
2	013	013	013	012	011	011	014	016	014	015	016	016	016	016	016	015	016	E015S	013	E016S	E016S	013	013	013
3	012	013	011	C11	011	013	E015S	011	015	015	016	016	015	015	016	013	014	E015S	E015S	012	E015S	013	012	012
4	E015S	015	011	013	010	014	E015S	014	016	013	015	015	015	017	014	015	015	E016S	E015S	E014S	E015S	E013S	E014S	E013S
5	E016S	E013S	E015S	011	011	E015S	E015S	016	013	014	017	015	016	016	016	015	015	014	E015S	013	E016S	E016S	014	E015S
6	013	014	013	011	010	011	014	012	014	016	018	023	017	018	018	016	013	014	013	012	013	013	E016S	E015S
7	E016S	013	013	011	011	014	014	015	014	014	017	017	017	016	015	015	014	013	E015S	E015S	013	013	011	E016S
8	014	013	013	011	011	011	015	014	014	016	015	015	013	015	014	014	017	013	013	013	014	013	E017S	E015S
9	013	013	013	012	014	013	015	015	015	015	016	016	015	015	016	013	014	015	E015S	013	E015S	E015S	E015S	012
10	012	011	012	011	010	012	013	013	014	015	C	016	016	016	015	015	015	014	013	E015S	011	E015S	014	014
11	014	012	013	011	013	013	014	012	015	013	016	015	C	C	C	014	011	015	E015S	014	E015S	013	013	013
12	014	013	013	011	011	010	014	014	014	013	014	016	014	015	013	013	012	013	E016S	013	013	E015S	011	013
13	E015S	013	011	012	011	011	013	012	013	013	016	015	014	015	014	014	014	013	E015S	014	011	013	013	011
14	011	011	E	010	013	013	015	013	014	015	015	017	017	016	017	016	013	014	014	E015S	012	E015S	E015S	014
15	014	013	011	011	011	015	015	013	016	014	015	016	014	015	015	014	014	013	013	012	013	E015S	E015S	E015S
16	E015S	E015S	013	013	013	013	015	017	013	015	015	015	015	015	016	015	014	016	E015S	E015S	013	E017S	014	E017S
17	013	E015S	013	011	010	013	014	017	015	015	017	017	018	016	017	017	015	014	E015S	013	013	013	013	E016S
18	013	013	011	012	015	011	014	014	014	014	C	015	016	016	016	014	015	015	013	E017S	013	014	012	012
19	014	015	014	013	010	013	013	015	015	026	019	017	017	017	015	015	014	015	E015S	012	012	011	013	013
20	011	014	011	012	015	012	013	015	016	014	015	016	016	017	016	016	016	014	E016S	012	E016S	011	012	013
21	011	012	011	010	011	015	015	015	015	014	016	015	017	016	016	018	016	013	014	013	013	E015S	014	014
22	013	012	013	012	012	013	015	015	016	016	016	016	016	016	015	016	017	014	013	014	012	014	E015S	012
23	E015S	013	013	013	011	015	013	015	014	016	017	020	026	017	021	026	016	015	E016S	013	013	E015S	014	012
24	013	011	014	012	012	014	014	014	016	016	016	027	025	019	025	017	015	015	E015S	E015S	E017S	012	E015S	E015S
25	E016S	013	015	013	015	013	013	015	015	014	014	015	015	016	016	015	013	014	E015S	014	014	011	E016S	E016S
26	E016S	014	015	011	013	013	015	014	015	016	017	017	016	017	017	015	016	015	012	E017S	E015S	E016S	014	E015S
27	013	013	011	010	010	013	012	013	016	015	016	022	021	022	018	016	020	015	E015S	013	011	E015S	014	E016S
28	014	015	014	015	012	012	013	016	017	020	022	027	030	033	026	020	025	016	014	013	012	013	E015S	012
29	014	015	013	012	013	012	013	017	025	033	030	034	025	032	022	017	C	016	E015S	013	014	E015S	014	014
30	E015S	013	015	013	013	014	013	015	015	016	017	022	014	026	016	016	015	015	E016S	E015S	E015S	E015S	013	014
31	014	013	011	011	010	013	013	012	013	014	C	015	016	017	015	015	015	012	014	014	013	013	E015S	012
No.	31	31	31	31	31	31	31	31	31	31	28	31	30	30	30	31	30	31	31	31	31	31	31	31
Median	014	013	013	012	011	013	014	014	015	015	016	016	016	016	016	015	015	014	E015S	013	012	012	013	013
U. Q.																								
L. Q.																								
Q. R.																								

f-min

Sweep 1.0 Mc to 20.0Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 6

IONOSPHERIC DATA

Jan. 1966 | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	280	300	285	340	360	380	300	330	345	325H	360	340	310R	355	365R	340	350	340	320	325	310S	330	300	285
2	295	290F	285	305S	350S	365	315	340S	355	360	375	320	340	340	345	360	355	340	295	320	335	300	290	305F
3	295	285	280	305	320	335	305	370	360	370	340	315	350	330	350	365	365	305	315	330	350	310	265	280
4	285	285	285	320	335	290	335	370	365	370	345	320	U340R	345	335	365	375	345S	280	310S	345S	310S	275	270
5	290	300	295	295	355	290	325	370	370	345	310	330	330	320	330	U345S	335	335	305	330	330	300H	295	280
6	270	295	310	315	345S	325	275	320	325	355	345	360	355	340	340	360	370	355	360	305	330	290	280	305
7	270	290	285	295	350	290	300	J350S	360	360	310	335	350	350	325	325S	360	345	305	335	315	305	290S	U295S
8	285	290	300	325	330	A	300	320	340	360	340	360	330	350	360	345	345	345	295	315	340	355	280	285
9	280	290	275	295	340	360	275	350	370	340	330	340	340	365	335H	345	345V	305	330	310	330	J290R	265	285F
10	300	290	285F	295F	F	F	305F	340	360	355	I340C	350	U360S	365S	370	320	380	335	325	330S	345	320	325	270
11	280	295	285	330	325	U345S	280	345	360	355	335	335	C	C	C	365	355	335S	350	305	350	290F	305	U290F
12	F	305F	295F	305F	340	370	300	340	355	365	360	360	350	335	355	340	355	350	330	340	340S	315	340	275
13	290	310	305	290	U305S	285	310	345	365	370	340	335	350	350	355	345	365	380	310	305	315S	330F	U295F	U290F
14	U275F	315S	325S	290F	U305F	305F	280S	345	355S	335	U360S	360H	325R	335	350	350	365	345	310	300	345	335	325	290
15	290	290	280	305	330	265	290	315	370	370	370	330	350	340	330R	345	365	365	350	325	330	340	295	280S
16	285F	290	295	270	290S	275	300S	340	355	345	355	320	350S	350	360S	315	350	355	355	270	335	325	280	280
17	300	295	295	295	295	335	295	345	350	355	320	320R	U355R	350	350	340	355	350	325	325	320	350	295	285
18	280	290	275	305	315	290	305S	360	380	365	I330C	345	350	355	355	360	370	355	355	335	U370S	355	280	280
19	285	275	280	320	310	265	335	355	365	360	320	320	340	J320R	360	335	A	A	310	350	325	260	I280A	290
20	285	280	285	290	325	305	310	365	375	350	355H	355	345	335	325	355	360	305	A	315	I330A	A	U255S	260
21	260	265	265	295	290	295	340	U355S	330	320	335	340	U310R	345	355	315	355	345	U365R	A	280	280	I265A	280
22	300	295	310	315	300S	295	285	340	U345R	350	350	345	345	U335R	365	345	360	335	A	290	340	335	275	270
23	285	275	295	350	315	270	290	340S	345R	330	320	330	335	320	330	U345R	355	330R	310	325	315	305	275	250F
24	280	275	290S	305F	320	285	305	325	U340S	355	305R	345	325	360	330	355R	355	345	370	345S	325	310	305	290
25	285	275	280	280	295	280	315	345	335	345	335	340	360	350	350	375	365	360	345	335	290	330	325	U275R
26	275	280	315	320	370	A	310	340	U375S	360	340	350	340S	340	365	355	345	360	285	320	350	290	270	275
27	305F	285F	305	335	360	275	285	330	355	370	315	U345R	345S	325	345	365	340	335	350	355	330	340	285	280
28	285	295	295	300	310	315	315	345S	355	350	330H	345	335H	400	U365R	345	360	365	340	340	350	305	290	300
29	275	305	285	310	310	345	350	350	U365R	360	340	355	350	350	355	360	I350C	355	340	300	345	300	290	295S
30	280	290	285	335	290	300	315	355	345	350	320	U345R	355	355	350	365	360R	355	315	355	310	U310S	300	295
31	270S	275F	295S	280F	300	295	310	370	U335R	345	I355C	340	335	345	360	360	U370R	360S	325	335	305	310	U280S	U280F
No.	30	31	31	31	30	28	31	31	31	31	31	31	30	30	30	31	30	30	29	30	31	30	31	31
Median	285	290	285	305	320	295	305	345	355	355	340	340	345	345	350	345	360	345	325	325	330	310	290	280
U. Q.																								
L. Q.																								
Q. R.																								

M(3000) F2

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 7

IONOSPHERIC DATA

Jan. 1966 | M(3000) F1 0.01 | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42. 4'N | Long. 139° 29. 3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												L	355L	L	L									
2										L	L	L	L	L		L								
3										L	L	380	L	L	L	L								
4											385L	375L	380L	L	L									
5									435L		U360L	365	U365L	L	L	L								
6									L	L	L	380L	390L	U380L	L									
7										375L	360L	L	L	380L	370L									
8										L	L	L	L	L	L	L								
9										L	L	L	L	L	L									
10										U370L	C	360L	U370L	L	L	L								
11										L	380L	375L	C	C	C	L								
12										L	L	370L	370L	360L	L									
13											L	380L		L		L								
14										L	L	380L	370L	370L	370L									
15										L	L	370L	390L	L	L	L								
16									L	L	L	L	L	L	400L	L								
17										L	L	365L	L	L	385L									
18									L	L	C	370L	R	L	L	L								
19										L	L	390L	L	370L	A		A							
20									L			L	L	U345L	370L	L								
21											L	L	385L	L	U380L									
22												380L	365L	370L	L	L								
23										L	L	L	370L	400L		L								
24										L	345L	370L	360L	L	L	395L								
25									L	400L	L	365L	370L	375L	L	L								
26										405L	L	360L	360L	365L	360L	L								
27										L	350L	365L	360L	350L	L	L	L							
28									L			365L	380L	L	L	L								
29									420L		L	350	L	375L	L	410L	C							
30										L	L	345L	360L	375L	L	L	L							
31									L		C	370L	365L	380L		L								
No.									2	4	6	22	18	14	7	2								
Median									430L	390L	360L	370L	370L	370L	370L	400L								
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

M(3000) F1

IONOSPHERIC DATA

Jan. 1966 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												255	275	245	230									
2										240	245	300	255	260		240								
3										245	240	300	250	280	250	240								
4											250	280	250	250	260									
5									220		280	270	255	275	250	230								
6									255	240	255	240	245	280	240									
7										235	315	250	235	240	265									
8										225	240	230	295	245	250	230								
9										260	260	255	260	240	240									
10										255	C	265	245	225	225	245								
11										245	260	250	C	C	C	215								
12										230	230	245	255	260	235									
13											255	265		250		225								
14										255	230	260	275	280	255									
15										225	215	235	255	245	270	230								
16									230	255	230	275	250	245	230	235								
17										245	330	275	230	245	250									
18									220	230	C	250	260	245	250	230								
19										230	260	260	255	290	245		A							
20									210			235	235	265	270	230								
21											265	235	255	250	235									
22												260	235	250	230	230								
23										265	250	225	255	245		250								
24										235	290	255	260	230	230	230								
25									240	250	270	270	230	250	250	230								
26										230	255	250	260	230	235	225								
27										230	315	250	255	275	250	230	220							
28									250			255	250	225	225	235								
29									220		275	250	255	260	240	230	C							
30										250	285	260	230	250	250	230	210							
31									255		C	255	270	250		245								
No.									9	21	24	31	29	30	26	21	2							
Median									230	240	260	255	255	250	250	230	215							
U. Q.																								
L. Q.																								
Q. R.																								

h'F2

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 9

IONOSPHERIC DATA

Jan. 1966 | h'F | km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	305	270	305	250	210	200	300	225	230	230	230	255	255	235	220	250	225	215	220	250	240	215	275	275
2	275	280	275	250	210	210	250	225	225	200H	210	200	200	250	240	230	200H	200	275	250	230	280	255	290
3	280	290	300	275	275	225	E300A	220	245	225	180	205	245	250	240	230	210	240	250	225	210	250A	350A	305
4	300	280	300	245	220	250	250	210	210	225	180H	185H	230	230	245	230	210	210	275	230	215	225	300	325
5	300	270	280	260	210	280	260	210	210	230	245	230	225	225	225	230	210	210	250	230	230	260	300	310
6	325	295	250	250	210	240	E395A	250	235	240	245	220	200	225	230	230	200	200	200	245	225	260	305	255
7	305	295	290	260	250	E300B	290	240	240	205	225	230	200H	210	240	230	210	215	270	230	265	250	305	315
8	305	285	260	230	230	I240A	275	255	250	230	220	225	245	235	230	220	230	225	265	250	230	215	320	305
9	300	280	305	275	230	210	325	230	225	225	200	220	250	240	230	220	220	210	225	230	250	280	300	300
10	270	260	290	260	250	250	210	230	220	250	I230C	265	245	225	210	200	205	190	E325A	275	230	275	270	315
11	325	290	285	255	230	215	325	230	235	230	210	200	C	C	C	210	210	205	220	225	205	250	255	275
12	285	280	260	265	215	200	E345A	205	225	240	215	225	190	180H	225	210	215	205	230	205	210	235	220	310
13	290	260	260	295	240	265	265	220	210	220	225	180	240	220	220	200	210	205	230	250	225	205	270	310
14	260	230	250	260	225	255	280	225	225	230	185H	210	185	210	200	235	225	210	255	250	210	235	255	295
15	320	325	300	260	235	310	305	245	220	215	200	185	180	190H	180H	210	220	200	210	225	220	230	270	300
16	295	300	275	305	275	275	305	245	230	230	225	205H	245	225	220	210	230	230	215	320	230	255	275	300
17	280	295	275	270	255	220	270	225	230	200H	205	220	230	205	200	225	220	200	225	225	235	200	305	305
18	305	300	300	260	250	275	260	230	220	205	I200C	215	200	230	250	225	210	260	195	230	205	205	305	350
19	315	315	305	250	220	330	225	225	220	205	245	200	245	200	I240A	240	I220A	I210A	240	200	220	325	I315A	340A
20	250	300	300	250	250	255	245	220	205	225	230H	230	230	205	215	230	215	290	I230A	230	I255A	A	350	320
21	330	330	315	255	275	285	230	220	230	255	250	240	205	230	210	215	230	215	200	A	300	300	A	305
22	270	305	265	240	260	275	325	230	230	235	255	235	180H	220	220	210	210	215	A	300	230	215	320	360
23	305	315	320	225	255	330	270	230	230	225H	205H	230	205	210	240	205	225	210	270	245	245	255	290	370
24	310	315	305	255	245	310	300	250	230	235	215	215	215	210	205	210	220	210	215	235	235	245	275	285
25	325	330	320	305	305	280	255	230	210	205	225	180H	205	205	210	215	210	225	245	215	240	250	260	350
26	330	300	255	230	200	A	260	210	230	190H	260	210	200	200	200H	200H	205	200	255	235	205	280	300	310
27	265	295	265	230	205	300	315	250	225	220	220	220	195	200	230	200H	200	205	200	200	200	230	230	315
28	325	280	290	275	260	255	250	220	220	220	230	245	215	225H	195	230	225	210	210	210	205	255	300	260
29	300	270	275	250	250	225	200	215	195	225	230	240	225	215	250	200	I210C	200	215	275	225	270	300	300
30	325	285	300	230	300	275	250	230	230	230	230	230	225	200	215	210	200	215	230	210	250	260	270	275
31	300	285	280	315	255	305	250	210	225	230	I210C	200	205	205	245	220	220	200	230	225	215	250	275	315
No.	31	31	31	31	31	30	31	31	31	31	31	31	30	30	30	31	31	31	30	30	31	30	30	31
Median	300	290	290	255	245	260	265	225	225	225	225	220	215	220	220	220	210	210	230	230	230	250	295	305
U. Q.																								
L. Q.																								
Q. R.																								

h'F

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 10

IONOSPHERIC DATA

Jan. 1966 | h'Es | km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	170	155	160	155	140	155	130	120	G	G	150	105	B	105	110	S	S	S
2	B	B	B	B	B	B	B	B	175	G	G	G	G	G	G	150	130	S	B	S	S	B	105	105
3	100	B	B	100	B	130	110	110	105	105	100	100	160	100	100	100	100	100	S	B	S	105	100	105
4	105	100	105	105	105	100	100	B	G	G	110	110	150	150	175	150	105	S	S	S	S	S	S	S
5	S	S	S	B	B	S	S	B	110	170	160	160	180	185	150	G	125	B	S	B	S	S	B	S
6	110	110	110	115	115	110	110	110	110	G	G	150	G	G	G	155	100	B	100	B	B	B	S	S
7	S	B	B	B	B	B	B	B	G	G	G	145	G	G	175	150	130	105	105	100	B	105	105	S
8	110	110	B	110	120	115	B	120	G	G	165	170	145	100	100	100	B	110	110	B	B	B	S	S
9	B	B	B	B	B	B	B	105	G	G	170	145	150	G	G	G	115	B	110	110	100	100	S	B
10	B	B	120	B	E	B	B	B	G	160	C	175	150	145	140	125	105	100	100	100	100	105	100	B
11	B	110	110	110	110	B	125	160	155	155	G	130	C	C	C	105	110	100	100	B	100	B	B	105
12	100	B	B	B	105	E	B	160	G	150	145	150	G	G	150	G	110	115	S	B	100	S	105	110
13	110	100	100	100	100	B	B	130	125	105	100	G	G	G	G	105	100	100	100	100	100	B	B	B
14	B	105	100	100	100	100	160	150	G	G	G	G	130	G	G	G	G	B	B	S	105	S	105	105
15	110	105	105	105	105	105	B	155	G	105	G	G	G	G	G	G	160	100	100	B	B	S	S	S
16	S	S	B	B	B	110	B	B	105	G	G	105	130	G	G	G	G	100	100	S	B	S	B	S
17	B	S	B	110	110	110	B	B	G	G	125	100	100	100	G	G	100	100	100	100	B	B	110	S
18	105	B	B	B	B	B	B	B	115	110	C	G	155	G	G	120	165	B	B	S	B	B	B	105
19	B	B	B	B	105	B	B	B	130	130	160	110	110	110	105	100	100	100	100	B	100	100	100	100
20	100	100	100	100	100	B	B	B	115	G	125	105	105	120	120	110	110	100	105	105	100	105	115	B
21	115	115	115	110	110	125	B	B	G	G	150	130	100	105	105	105	100	100	100	100	100	100	100	105
22	B	120	105	115	115	B	B	B	170	160	130	130	G	G	G	100	100	100	100	100	110	B	100	110
23	110	110	120	B	115	155	B	150	115	G	G	G	G	G	G	B	G	105	100	100	100	100	100	*120
24	120	110	110	110	B	110	B	B	155	165	130	G	100	G	G	150	120	110	110	110	S	B	110	110
25	110	110	B	B	110	110	B	B	G	G	115	G	G	180	G	G	G	100	100	100	B	100	100	100
26	S	B	100	110	100	100	100	B	G	115	150	145	145	G	G	G	G	B	100	100	100	S	B	S
27	B	B	100	100	110	B	B	B	G	G	G	120	120	140	130	G	B	B	100	100	100	S	100	S
28	105	100	B	100	110	B	B	B	G	160	155	130	130	B	G	155	B	B	B	B	B	100	S	B
29	B	B	B	B	B	B	B	B	B	B	B	B	G	B	G	G	C	B	S	B	B	S	B	B
30	S	B	B	B	B	B	B	B	G	B	130	G	120	120	115	G	G	B	S	S	100	105	B	B
31	115	110	120	125	E	125	B	G	130	G	C	G	G	G	G	105	G	B	B	B	B	B	100	B
No.	15	15	15	17	18	14	7	11	15	14	18	20	19	13	12	17	20	18	19	14	15	11	16	12
Median	110	110	105	110	110	110	110	150	125	150	135	130	130	120	125	110	110	100	100	100	100	100	100	105
U. Q.																								
L. Q.																								
Q. R.																								

h'Es

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 11

IONOSPHERIC DATA

Jan. 1966 | Types of Es | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N, Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							f	hl	h	hl	h	h	h	c			h	f		f	f			
2									hl							h	h						f	f
3	f			f		f	f3	13	13	12	12	12	h12	1	13	1	1	f				f2	f2	f
4	f	f	f	f	f	f	f				1	1	h	h	h	h2	1							
5									1	h	h	h	h	h	h		h3							
6	f	f	f	f	f	f	f3	12	1h			h				h	1h		f2					
7												h			h	h2	h3	f	f2	f		f2	f2	
8	f2	f		f	f	f3		1			h	h	h212	12h	13	1		f	f2					
9								1			h	h	h				12		f	f	f	f		
10			f							h		h	h	h	h2	h2	1	1	f5	f3	f3	f2	f2	
11		f2	f2	f	f2		f	h	h	h		h				12	12	1	f2		f			f
12	f				f			h		h	h	h12			h		13	1			f		f	f
13	f2	f2	f2	f2	f			h2	h2	12	12					12	14	1h	f	f2	f			
14		f2	f4	f2	f	f2	f	h2					h2								f		f	f
15	f2	f3	f2	f2	f3	f2		h		13							h2	1	f					
16						f			1			1	h					1	f					
17				f	f	f					h	1	12	1			12h	1	f2	f			f	
18	f								1	1			h			c	h							f5
19					f				h2	h	h	c	c	c	c2	13	13	13	f2		f2	f	f2	f3
20	f	f2	f2	f	f				1		h	12	c	c	c	c	1	13	f5	f2	f3	f3	f3	
21	i	f2	f2	f4	f2	f					h	h	1	1	12	1	13	14	f	f2	f2	f2	f4	f
22		f3	f2	f	f				h2	h	h	h				1	1	1	f3	f2	f2		f	f
23	f	f2	f2		f	f		h	1									12	f3	f2	f	f	f	f
24	f	f2	f3	f		f			h	h	h		1			h	c1	12	f	f3			f	f
25	f	f2			f	f					c1			h				12	f3	f		f	f	f
26			f	f	f	f2	f			1	h	h	h						f2	f	f			
27			f2	f3	f							c	c	h	h				f	f	f		f	
28	f	f		f	f					h	h	h	h			h						f		
29																								
30											h		c	c	c2						f	f		
31	f	f2	f2	f		f			h							1h2							f2	
No.																								
Median																								
U. Q.																								
L. Q.																								
Q. R.																								

Types of Es

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jan. 1966 | hpF2 km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	335	310	335	270	230	205	310	245	250	270H	240	260	275R	250	235R	260	245	255	260	270	280S	340	310	315
2	330	325F	335	285S	235S	245	285	265S	245	250	250	305	260	260	260	250	250	250	305	295	255	315	310	310F
3	320	330	350	305	275	255	305	240	250	250	250	305	255	300	250	250	245	295	300	260	250	300	365	360
4	330	320	340	290	255	300	280	250	240	240	255	300	U255R	250	265	245	225	230S	345	270S	235S	270S	345	365
5	325	300	315	315	235	350	285	230	230	250	300	280	275	275	275	U265S	230	250	305	270	270	315H	335	335
6	360	330	285	280	240S	255	395	280	275	250	255	250	250	295	250	250	220	230	220	300	275	305	350	305
7	355	340	340	320	250	320	310	J250S	250	245	315	260	250	255	275	270S	225	250	305	255	310	295	335S	U330S
8	340	320	305	275	255	A	305	275	265	245	255	235	305	255	255	255	265	260	300	285	260	245	345	330
9	330	330	330	315	260	230	350	255	240	270	290	270	290	250	260H	260	250V	295	270	290	290	J300R	355	350F
10	310	315	340F	325F	F	F	305F	255	250	260	I280C	265	U250S	230S	235	280	210	240	A	A	235	A	295	360
11	355	325	325	310	275	U230S	335	260	255	255	265	265	C	C	C	225	225	260S	245	285	230	285F	305	U335F
12	F	315F	305F	300F	245	215	S	240	255	240	240	245	255	265	235	255	235	235	275	250	240S	280	245	350
13	305	285	305	335	U280S	315	305	245	230	230	255	275	245	255	225	240	230	220	305	285	270S	235F	U305F	U325F
14	U345F	285S	255S	325F	U280F	285F	305S	245	245S	275	U230S	275H	290R	280	255	255	235	245	290	290	235	255	275	325
15	345	335	340	315	265	360	330	280	230	230	230	260	260	255	275R	250	235	220	230	270	270	265	300	330S
16	330F	325	315	345	325S	310	310S	260	235	260	240	275	260S	245	230S	280	250	235	250	360	270	285	305	325
17	325	325	305	315	295	245	300	285	250	245	G	280R	U230R	255	255	270	230	250	275	260	270	230	325	325
18	345	335	330	300	280	310	290S	250	225	235	I270C	255	265	250	255	240	230	240	265	260	U215S	245	355	350
19	345	345	330	280	280	375	255	240	230	250	290	290	260	J300R	250	260	A	A	300	240	275	355	I340A	350
20	310	350	345	320	260	305	295	250	220	235	250H	250	250	275	290	245	235	320	A	275	I260A	A	U395S	385
21	375	380	370	300	325	325	245	U230S	265	280	285	260	U305R	255	245	275	250	235	U230R	A	350	345	A	340
22	305	330	305	275	300S	310	350	255	U255R	260	265	265	245	U270R	240	255	220	255	A	325	265	340	350	395
23	345	355	350	255	285	360	315	270S	255R	280	275	245	270	265	275	U260R	245	245R	310	275	275	295	340	430F
24	345	355	345S	295F	280	350	325	280	U265R	250	300R	255	275	230	260	255R	230	240	230	255S	265	290	315	325
25	350	365	360	345	335	325	290	255	265	255	270	285	240	255	255	240	215	230	255	245	305	275	285	U365R
26	355	335	285	265	225	A	285	245	U230S	240	280	255	275S	250	245	230	235	235	330	295	235	305	355	355
27	300F	330F	305	270	230	335	335	275	235	235	315	U260R	260S	C	250	230	255	255	235	220	265	255	340	345
28	345	320	335	310	295	295	280	230S	250	250	285H	260	260H	225	U235R	245	250	230	245	245	240	300	325	310
29	340	305	330	295	295	250	230	240	U230R	230	280	260	255	260	250	245	I235C	235	250	310	250	300	335	325S
30	345	325	325	270	330	320	290	250	255	260	300	U265R	235	250	255	230	220R	235	265	240	290	U295S	315	325
31	340S	340F	325S	345F	300	335	290	225	U270R	265	I245C	255	280	255	245	250	U230R	220S	275	265	295	295	U325S	U340F
No.	30	31	31	31	30	28	30	31	31	31	30	31	30	29	30	31	30	30	28	29	31	29	30	31
Median	340	330	330	300	280	310	305	250	250	250	270	260	260	255	250	250	235	240	270	270	265	295	330	335
U. Q.																								
L. Q.																								
Q. R.																								

hpF2

Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 13

IONOSPHERIC DATA

Jan. 1966 | ypF2 km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	065	040	050	035	035	055	060	060	045	055H	045	040	040R	040	045R	040	045	045	045	050	045S	065	045	040
2	035	050F	060	065S	040S	055	050	035S	035	030	020	050	050	045	045	035	045	055	095	060	050	085	030	070F
3	070	070	075	050	050	045	095	035	045	025	060	055	050	030	050	030	045	085	050	050	050	090	085	080
4	070	075	060	055	050	100	060	040	040	045	045	055	U050R	050	050	040	045	065S	050	065S	060S	045S	050	045
5	055	050	050	035	060	050	040	040	035	050	050	040	055	050	045	U040S	060	045	045	035	030	035H	050	065
6	045	055	060	045	050S	055	045	045	040	045	050	030	045	050	060	035	050	070	075	050	065	095	055	055
7	065	060	055	050	050	070	060	J050S	030	040	050	045	050	045	050	050S	050	050	050	045	040	040	040S	U040S
8	045	050	045	045	045	A	045	060	045	040	045	050	025	035	030	045	040	035	045	050	040	050	055	045
9	065	050	060	040	040	030	055	035	030	050	040	050	030	045	060H	065	050V	085	055	060	050	J070R	090	075F
10	080	080	060F	065F	F	F	065F	045	050	040	I040C	035	U035S	045S	040	045	040	055	A	A	065	A	040	040
11	050	050	050	040	050	U050S	065	040	035	045	050	045	C	C	C	045	045	040S	040	040	045	060F	045	U050F
12	F	050F	060F	055F	050	040	S	060	035	035	045	040	045	045	060	045	060	055	040	050	055S	040	055	050
13	050	045	035	030	U050S	040	035	040	045	050	050	045	050	035	045	055	045	035	050	050	050S	065F	U045F	U050F
14	U085F	050S	050S	035F	U055F	045F	040S	045	035S	040	U055S	090H	035R	040	050	040	035	050	035	040	050	045	050	030
15	030	040	035	040	035	040	035	045	040	035	045	050	045	045	035R	050	040	035	055	050	035	040	045	045S
16	045F	035	035	055	055S	045	045S	040	050	040	045	035	045S	045	050S	045	040	050	065	040	035	035	050	030
17	035	030	050	040	040	050	045	050	040	040	G	050R	U055R	035	040	035	055	060	050	045	040	045	035	040
18	060	035	075	045	045	040	045S	035	040	045	I045C	045	040	050	040	045	040	055	035	045	U050S	035	050	045
19	050	050	050	040	035	045	045	045	045	050	055	050	045	J050R	030	060	A	A	050	060	050	095	I070A	050
20	090	060	050	075	050	045	055	045	045	050	050H	035	050	040	035	035	035	030	A	040	I060A	A	U055S	065
21	050	050	075	050	035	040	050	U050S	050	050	040	040	U040R	045	040	045	040	055	U040R	A	050	055	A	055
22	040	040	045	045	050S	050	040	045	U045R	040	035	045	050	035R	035	040	050	045	A	050	035	040	050	035
23	030	050	045	035	045	045	035	035S	050R	035	055	040	045	050	040	U045R	050	055R	035	040	040	040	045	055F
24	040	045	035S	055F	045	050	035	040	045S	035	045R	050	050	060	055	040R	060	055	045	045S	055	035	040	030
25	050	035	040	040	040	030	045	045	040	045	035	040	045	030	045	035	040	055	045	055	035	030	040	U050R
26	045	060	040	035	030	A	040	050	U045S	050	030	045	035S	050	040	055	055	030	035	035	040	045	045	045
27	055F	055F	045	035	045	065	070	045	050	045	040	U040R	045S	C	050	045	050	045	060	055	055	050	060	055
28	050	035	030	040	040	040	040	065S	050	040	065H	045	070H	030	U050R	050	035	045	055	055	065	045	040	040
29	055	030	040	050	050	050	045	050	U055R	055	030	035	045	040	045	040	I050C	060	050	045	050	045	060	040S
30	055	035	040	035	055	040	055	050	045	045	035	U040R	055	045	050	035	045R	045	065	045	040	U035S	040	035
31	065S	070F	060S	060F	055	040	040	050	U045R	040	I035C	050	035	045	040	025	U045R	045S	040	035	055	050	U050S	U055F
No	30	31	31	31	30	28	30	31	31	31	30	31	30	29	30	31	30	30	28	29	31	29	30	31
Median	050	050	050	045	050	045	045	045	045	045	045	045	045	045	045	045	045	050	050	050	050	045	050	045
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

ypF2

Sweep 1.0 Mc to 20.0Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Jan. 1966 | foF2 | 0.1 Mc | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	026	029	027	028F	037S	U027S	J017S	028	050	057	061	050	071S	J064S	J062S	051	065S	060S	038	J025S	032	J036S	026	027
2	027	029	030	031	S	J030S	024S	034S	058S	J057S	062S	055	066	J078S	J063S	I065S	060	056	040S	028S	031	038S	048S	I039S
3	I033S	030	I031S	031	032	033S	J026S	030	055	056	058	057	064	081	J066S	066	055	049H	032	040	039	032	028	026
4	029S	030S	031	030	030	026	023S	032S	054	059	065S	063	083	072	J076S	071	054	056	035	028S	I037S	029S	029S	I029S
5	027S	029S	J030S	I031S	032	025	024S	J033S	052	J057S	I056S	068	I080S	072S	066	066	U077S	058S	J040S	029S	028	028	026S	025
6	027	029	031S	032	I035S	C	C	C	C	C	C	C	069	071	086	070	061S	050	032	026	029	032S	028	030
7	I031S	032S	033	034	I037S	029	025	029	053	073S	I075S	074S	J073S	069	J064S	066S	063	051S	034S	032	J031S	031	028S	I030S
8	030S	031	034	I034S	033S	023H	020S	I029S	J051S	J065S	067	056H	073	075S	079	067S	J063S	059	049S	I036S	032	034	031S	030S
9	029	030	030S	031S	J040S	025S	019S	031	054	063S	071	068	J066S	084	J075S	059H	061	052S	J043S	U039S	031S	I031S	028	028
10	029	029	029	C	C	C	C	C	045S	064	J064H	065	U074S	085	066S	071S	060	051S	036	J040S	038S	031S	026S	022
11	024S	028S	027S	027	029S	029S	021	031S	054	059	J064S	I063S	J064S	080S	092S	I072S	059	050	J042S	024S	I032S	029	J029S	026S
12	027S	028	029	030	031	029	J018S	J025S	049	J063S	058	056	063H	U076S	067	060	059	048	042S	029	028	027	029	025
13	024	026	030S	026S	028S	025	024	032S	052	055S	067	065	062	077S	060	059S	059	048S	038S	U028S	I031S	029S	029	J022S
14	F	026S	027S	I030S	I027S	026	I019A	026S	061S	068S	058	059	061	068	068	J076S	060	069	046	027S	J027S	030	030	031
15	026	028	J029S	026	030	025F	024S	030	054S	060	072S	069	061	062	068	069	J064S	052	038	034S	J040S	J035S	026H	024
16	025	025	027S	029	033S	025	020	J028S	059	062S	057	057	084	J077S	071	J074S	055	J066S	044	025	032	036S	035S	025
17	025	027S	028	030	032	027	026	030	057	064	055	067	J076S	078	080	068	067	061	042	J030S	034S	041	028	025S
18	029	029S	030	030	J031S	031	032S	S	057	056S	051	067	072S	080	076S	071S	J064S	054	057	U045S	034	030	031S	026
19	029	029	030	030	031	030	028S	041S	058	053	051H	J077S	091	081	090	059	072	U072S	039	039S	047S	I031A	I026S	031
20	028	J029S	028S	031S	034S	030S	J027S	034S	056	059S	057	071	I074S	071	078	078	066	057	051S	055	047	I029A	I026A	027
21	030	I029A	031S	032S	029S	026	036S	031S	054	J055S	073S	U093S	091	087	078	068V	057	071S	056	031	029	031S	030S	027
22	J031S	032S	034S	030S	025	025S	025S	033S	060S	062	072S	075S	096	087	J076S	059	059	068C	J047S	J042S	042S	049	I036S	035S
23	038S	034	031	038	030	021	021	037	I066S	083S	092S	I098S	071H	082	076S	J100S	J064H	062	058	035	036	038	I035S	027
24	028	028	028	030	I030S	026S	024S	031	J064S	I069S	076S	082	091S	101S	I091S	079S	064S	057	056	047	050	036	033	024
25	027S	I028S	028	028	030S	032	033S	031	054	067	074S	074	080	068	081	087	058	J060S	050	050	J033S	036	031S	023
26	023	024	I027S	034S	028	020	019S	029S	047	058	061	066	076S	074	084	077S	062	054	044S	037	039	025	I022S	022S
27	025	027	027S	028S	J032S	022S	021	031	057	059	061	064S	087	099	J076S	063S	057	057	046	040S	041	J033S	023	022
28	025	027	028	029	030	029	025	031S	050	055	051	066	J097S	078	058	057	057	060S	055	047S	031S	026S	022	024S
29	025S	026S	027	027	U030S	032S	025	032S	050	051	056	064	066	068	066	065	052	057S	040S	I031S	I030S	031S	022	025S
30	027S	028S	030S	031	030	030S	029	031S	048	058	056	073	J099S	065	065	057	057	054	042	038S	C	C	C	C
31	J025S	025S	027	028	J029S	028	I028S	037S	051S	051	055	059	059	061	064	061	056	055	041	039	040	030	030	031
Count	30	31	31	30	29	29	29	28	30	30	30	30	31	31	31	31	31	31	31	31	30	30	30	30
Median	027	029	029	030	030S	027	024S	031S	054	059	061	066	073	077	075	067	060	057	042	035S	032	031	028S	026
U.Q.	029	029	031	031	032	030	026	032	057	064	071	073	084	081	079	072	064	060	049	040	039	036	031	030
L.Q.	025	027	027	028	030	025	020	030	051	056	056	059	066	069	066	060	057	052	038	028	031	029	026	024
Q.R.	004	002	004	003	002	005	006	002	006	008	015	014	018	012	013	012	007	008	011	012	008	007	005	006

The Radio Research Laboratories, Japan

foF2

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

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IONOSPHERIC DATA

Jan. 1966 | foF1 | 0.01 Mc | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	460	L	L	370								
2											L	L	LH	440	430L	L	L	200						
3											L	410	420	410	410	390L	L							
4											400L	420	420	420	420	340	L							
5											450L	420	420	430L	400									
6										C	C	C	430	410	L	L								
7									240	L	L	420	430	430	410L	L								
8											L	L	420	430	410	L	L							
9										L	L	420		430	L									
10										L	L	410	450	420	LH	L	310							
11										L	L	LH	LH	450	LH	L								
12										L		430	410	L	420	L	320							
13											420L	420	L	430	410	L								
14										L	L	420	L	440	430	410								
15											410L	L	L	430	L	L								
16											L	L	420	440	450L	LH								
17											410L	440	450	450	430	L								
18											370	450	440	440	440	L								
19												430	450	450	L	L								
20											L	410	L	L	450L	420	L							
21											420L	440	450L	460L	440	L								
22											L	L	390	460	LH	400								
23										L	L	430	440	450	410	L	L							
24										L	420L	450	450	400	440	L								
25											L	430	430	420	440	330H								
26											L	440	440	440	420	L	L							
27												450	430	430	430	380L								
28												430	410	U400L	410L	L	350							
29												430	450	440	430	390	L							
30										L	L	430	430	430	420									
31											L	420	430	430	420	L	L	L						
Count									1		8	23	24	28	23	9	3	1						
Median									240		420L	430	430	430	420	390	320	200						
U.Q.																								
L.Q.																								
Q.R.																								

foF1 | Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jan. 1966 | foE | 0.01 Mc | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	200	260	290	300	305	I305R	300	280H	240H	190						
2								S	180	I250A	295	305	315	310	300	270	230	A						
3								S	180	240	I275A	295	320H	I320A	310	270	230	160						
4								S	170	240	I280A	300	310	I310A	300	270	230	S						
5								S	S	240H	A	A	A	A	300	280	220	S						
6								C	C	C	C	C	310R	310	305	I280A	250	180						
7								S	180	245	280H	I300R	310	I310R	290R	280	240	180						
8								S	S	240H	280	300	315	310	300	280	240	S						
9								S	200	250	I285A	300	305	310	295	270	230	S						
10								C	190	250	280	305	310	310	300	285	250	S						
11								S	190H	250	265	290	I290A	I310R	300	270	225	S						
12								S	190	270R	290	290	310	320	305	280H	240H	S						
13								S	200H	260	I290A	300	310	315	300	280	240	S						
14								S	200	270	I300A	I320A	320	330	315	305	270	170						
15								S	190	240	I280R	310	320R	320	315R	290	250	S						
16								S	200	260	300	310	320	320R	I310A	280	250	S						
17								S	190	260	295	305	310R	300	300	I290A	270	170						
18								S	200	260	290	I305R	320	A	A	I290R	260	190						
19								S	A	260	300	320	330R	330	320	290	260	190						
20								S	190	260	290	300	I305R	310	300	270	A	S						
21								S	210	260	275	295	I300A	I295R	285	I265A	A	S						
22								S	160	250	285R	I300A	315	320	310	I285A	A	S						
23								S	210	260	290	I305A	320	320	310	295	250	S						
24								S	A	260H	280	290	320	I320A	I315R	290	255	190						
25								S	180	250	290	I300S	I310A	I310A	310	290	255	170						
26								S	170	260H	300	I300A	320	I320R	310	A	A	S						
27								S	A	A	I295R	310	315R	310	300	290	250	A						
28								S	210	260H	290	30[illegible]	I300R	300R	I300R	I285R	250	200						
29								S	180	250	I285R	I300R	R	R	310R	I280R	255	185						
30								S	190	240	280H	300	305	300	295	280	255	190						
31								S	170	260H	290	300	I310A	I305A	300	290	250	200						
Count									25	29	29	29	29	28	30	30	27	14						
Median									190	260	290	300	310	310	300	280	250	190						
U.Q.																								
L.Q.																								
Q.R.																								

foE

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 3

IONOSPHERIC DATA

Jan. 1966 | foEs | 0.1 Mc | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N – Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E015S	E015S	E012B	E015B	E015B	E015B	E017S	E015S	026	030	034	035	033	031	032	G	G	G	018	024M	024M	024M	E015S	E015S
2	E015S	E015S	E015B	E	E	E015S	E015S	E015S	G	J028	G	G	032	036	G	030	030	J022	J022	J020	J020	022	022M	E016S
3	E015S	E015S	E015B	E015B	E015B	E014B	E016S	E016S	G	015G	J037	036	036	043	G	G	018G	J052	021M	021M	E015S	E015S	E015S	E015S
4	E015S	E015S	E015S	E	021M	E014S	E015S	E015S	G	G	031	034	G	J033	023G	029	G	E015S	021M	J020	022M	018M	E015S	E015S
5	E016S	020M	E015B	E017B	E015B	E015B	E016S	E015S	E016S	G	032	033	035	J033	026G	024G	G	021	J020	J021	019M	022M	E015S	E015S
6	E014S	E014B	E015B	022M	J023	C	C	C	C	C	C	C	G	023G	019G	J039	031	022	J019	022M	E015S	E016S	E015S	022M
7	E016S	E015S	E015B	E015B	E015B	E014B	021M	E015S	G	G	G	034	019G	021G	019G	034	020G	023	E015S	E015S	E015S	E015S	E016S	E015S
8	E015S	E015S	E015B	E015B	E015B	E015S	E016S	E015S	E015S	030	032	019G	036	038	018G	G	G	E015S	J022	J020	E015S	E015S	E016S	E015S
9	E015S	E014S	E015B	E015B	021M	J022	021M	020M	023	029	035	034	028G	025G	024G	J029	G	023	E015S	019M	E016S	E015S	E015S	E015S
10	E015S	E015S	E015B	C	C	C	C	C	G	G	G	G	G	036	021G	021G	021G	E016S	E015S	E015S	E014S	E016S	E015S	E015S
11	E015S	E015S	E018B	022M	J021	020M	019M	E015S	G	026	030	032	031	030G	024G	019G	G	021	E015S	E013S	022	E015S	E015S	E015S
12	028	E016B	E016B	E015B	E015B	E015S	019M	E014S	G	G	032	034	031	036	034	030	027	023	E016S	J021	023	E015S	E015S	J019
13	E017S	E015S	E015B	E015B	E015B	E015S	E015S	E015S	G	G	029	028G	025G	035	020G	G	G	E015S	E015S	E015S	S	018M	E015S	019M
14	019M	E015S	E015B	E015B	E015B	E015S	023M	021M	J023	G	J031	J039	G	G	G	G	021G	G	E015S	E015S	021M	J018	E014S	017M
15	E015S	E015S	E015B	E015B	E015B	E015S	E016S	E017S	G	G	G	034	029G	028G	026G	G	G	E015S	E015S	J020	E015S	E015S	E015S	E015S
16	E015S	020M	E015B	E015B	E	E016S	E015S	E015S	024	G	G	025G	G	025G	J032	028G	J022G	J030	J020	J015S	J025	019M	019M	019M
17	E015S	E015S	E015B	E015B	E015B	E	E016S	E015S	G	021G	025G	035	035	039	033	031	024G	020	E015S	E015S	J019	J018	E015S	E015S
18	E015S	E015S	E015B	E015B	E015B	E015B	E015S	E015S	G	G	G	030G	034	032	J041	029G	025G	G	019	022M	023M	E015S	E015S	E015S
19	E015S	E015S	E015B	E015B	E015B	E015B	E015S	E015S	J027	G	036	040	038	040	039	033	G	G	E015S	022M	J020	J037	021M	J019
20	J019	E015S	E015B	J015	E015B	019M	E015S	E015S	G	G	G	035	036	037	037	037	J034	J028	J023	J030	J020	J037	J028	J023
21	J018	J038	029M	029M	J033	J020	020M	J017	G	025G	029	035	J036	G	033	036	J030	024	022	J021	E015S	E016S	E015S	E015S
22	E015S	030M	J020	J020	E015B	E015S	J025	J030	J023	030	G	031	035	036	033	031	028	J032	017	024M	J020	019M	020M	E015S
23	E015S	021M	E015B	J021	E015B	E015S	E015S	E015S	025	J031	G	031	G	G	022G	022G	J020G	J022	J018	J015S	E015S	018M	J023	J019
24	E015S	E015B	E015B	E015B	E015B	E015S	J020	J020	026	033	032	023G	G	034	026G	022G	028	029	J024	J038	J032	J024	J021	E015S
25	E015S	E015S	E015B	J021	E015B	E015B	E015S	J016	J020	G	035	037	035	035	J028G	028G	027	J024	J020	E015S	E015S	E015S	E015S	E015S
26	E015S	E015S	E015B	E015B	E	E015S	E015S	E015S	G	029	J023G	037	025G	J031G	J028G	J032	039	J042	035	J023	J019	J016	J019	J016
27	E014S	E015S	J022	J023	J016	E015B	E015S	E015S	022	028	G	026G	027G	021G	G	021G	G	019	J015S	J019	J016	J020	020M	E015S
28	E015S	E015S	E015B	E015B	E015B	E015B	E015S	E015S	G	G	034	035	024G	025G	G	025G	J025G	G	E015S	E015S	E015S	E015S	E015S	E014S
29	E015S	E015S	E015B	E015B	E014B	E014S	E015S	E015S	G	G	G	033	035	035	033	025G	023G	021	J021	023M	018M	E015S	E015S	E015S
30	E015S	E015S	E015B	E	E014B	E015S	E015S	J014S	G	G	G	036	034	040	G	030	G	G	E015S	E015S	C	C	C	C
31	E015S	J022	J023	J022	E015B	E015B	E015S	E015S	G	G	033	036	036	034	031	G	J029	022	E015S	E015S	E015S	E015S	019M	E015S
Count	31	31	31	30	30	29	29	29	30	30	30	30	31	31	31	31	31	31	31	31	29	30	30	30
Median	E015S	E015S	E015B	E015B	E015B	E015	E015S	E015S	G	G	029	034	031	033	G	G	G	021	018	020	019	E016S	E015S	E015S
U.Q.	E015	E015	E015	020	E015	E015	019	E016	023	028	032	035	035	036	033	031	028	024	021	022	022	019	019	017
L.Q.	E015	E015	E015	E015	E015	E015	E015	E015	G	G	G	G	G	G	G	G	G	G	E015	E015	E015	E015	E015	E015
Q.R.				D005			D004												D006	D007	D007	D004	D004	D002

foEs

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

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IONOSPHERIC DATA

Jan. 1966 | f_bEs | 0.1 Mc | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	B	B	B	B	S	S	G	030	033	034	G	E031R	G				E	E	E	E	S	S
2	S	S	B			S	S	S		026			029	G		030	021	018	020	E	E	020	E	S
3	S	S	B	B	B	B	S	S		014G	031	035	035	034			015G	G	E	E	S	S	S	S
4	S	S	S		E	S	S	S			031	G		032	022G	029		S	E	E	020	E	S	S
5	S	E	B	B	B	B	S	S	S		031	033	033	032	026G	023G		019	E	018	E	E	S	S
6	S	B	B	E	018	C	C	C	C	C	C	C		023G	019G	032	030	021	019	E	S	S	S	E
7	S	S	B	B	B	B	E	S				034	019G	021G	019G	034	017G	021	S	S	S	S	S	S
8	S	S	B	B	B	S	S	S	S	030	031	017G	035	037	016G			S	020	020	S	S	S	S
9	S	S	B	B	E	017	E	G	G	029	032	033	028G	025G	024G	022		021	S	019	S	S	S	S
10	S	S	B	C	C	C	C	C						035	021G	021G	016G	S	S	S	S	S	S	S
11	S	S	B	E	015	E	E	S		G	E030R	G	E031R	E030R	023G	019G		G	S	S	E	S	S	S
12	020	B	B	B	B	S	S	S			032	033	E031R	036	034	030	027	022	S	E	E	S	S	E
13	S	S	B	B	B	S	S	S			E029R	028G	023G	034	019G			S	S	S	S	E	S	S
14	016	S	B	B	B	S	A	G	G		030	032					021G		S	S	E	E	S	E
15	S	S	B	B	B	S	S	S				033	029G	028G	026G			S	S	017	S	S	S	S
16	S	E	B	B		S	S	S	023			024G		025G	031	020G	020G	022	017	S	E	E	E	E
17	S	S	B	B	B		S	S		021G	025G	032	035	034	032	031	024G	G	S	S	E	018	S	S
18	S	S	B	B	B	B	S	S				E030R	034	E032R	032	E029R	024G		019	E	E	S	S	S
19	S	S	B	B	B	B	S	S	022		036	039	037	039	038	G			S	E	E	A	021	E
20	E	S	B	015	B	E	S	S				E035R	035	036	036	033	032	026	023	026	019	A	A	020
21	E	A	018	016	019	016	E	G		024G	E029R	035	034		032	032	028	024	020	017	S	S	S	S
22	S	021	E	018	B	S	018	020	G	030		E031R	034	034	G	031	026	025	E	E	E	018	016	S
23	S	E	B	016	B	S	S	S	025	020		E031R			021G	020G	016G	021	E	S	S	017	020	016
24	S	B	B	B	B	S	E	G	026	031	031	022G		032	026G	020G	028	026	023	030	020	020	018	S
25	S	S	B	018	B	B	S	G	019		032	033	033	032	024G	020G	G	019	018	S	S	S	S	S
26	S	S	B	B		S	S	S		029	020G	032	024G	E031R	027G	031	031	035	034	023	017	E	E019S	E
27	S	S	016	E	E	B	S	S	G	026		026G	025G	020G		021G		E019R	S	E	E	019	E	S
28	S	S	B	B	B	B	S	S			033	034	024G	025G		020G	025G		S	S	S	S	S	S
29	S	S	B	B	B	S	S	S				033	035	E035R	033	024G	020G	G	017	023	018	S	S	S
30	S	S	B		B	S	S	S				034	033	035		029			S	S	C	C	C	C
31	S	015	016	015	B	B	S	S			031	032	032	032	031		023	018	S	S	S	S	E	S
Count																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

f_bEs Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 5

IONOSPHERIC DATA

Jan. 1966 | f-min | 0.1 Mc | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E015S	E015S	012	015	015	015	E017S	E015S	016	015	015	015	018	016	015	019	016	E015S	E015S	E015S	E016S	E015S	E015S	E015S
2	E015S	E015S	015	E	E	E015S	E015S	E015S	015	015	015	015	015	015	016	015	016	013	E015S	E015S	E015S	E015S	E015S	E016S
3	E015S	E015S	015	015	015	014	E016S	E016S	E016S	012	014	015	015	015	015	015	014	E015S	E015S	E015S	E015S	E015S	E015S	E015S
4	E015S	E015S	E015S	E	E	E014S	E015S	E015S	015	012	015	015	016	016	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
5	E016S	014	015	017	015	015	E016S	E015S	E016S	015	013	015	015	015	013	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
6	E014S	014	015	015	E	C	C	C	C	C	C	C	015	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
7	E016S	E015S	015	015	015	014	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E015S	E016S	E015S	E015S
8	E015S	E015S	015	015	015	E015S	E016S	E015S	E015S	015	016	015	016	015	015	016	015	E015S	E015S	E015S	E015S	E015S	E016S	E015S
9	E015S	E014S	015	015	015	E015S	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E016S	E015S	E015S	E015S
10	E015S	E015S	015	C	C	C	C	C	015	015	016	015	015	015	015	013	015	E016S	E015S	E015S	E014S	E016S	E015S	E015S
11	E015S	E015S	018	015	E	015	E015S	E015S	015	016	015	015	016	015	015	015	015	E015S	E015S	E013S	E015S	E015S	E015S	E015S
12	E015S	016	016	015	015	E015S	E015S	E014S	015	015	015	015	015	015	015	015	015	E015S	E016S	E015S	E015S	E015S	E015S	E015S
13	E017S	E015S	015	015	015	E015S	E015S	E015S	E015S	015	015	015	015	015	015	015	015	E015S	E015S	E015S	S	E015S	E015S	E014S
14	E015S	E015S	015	015	015	E015S	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E014S	E014S
15	E015S	E015S	015	015	015	E015S	E016S	E017S	015	014	015	015	015	015	016	017	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
16	E015S	E015S	015	015	E	E016S	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
17	E015S	E015S	015	015	015	E	E016S	E015S	015	015	015	016	016	017	017	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
18	E015S	E015S	015	015	015	015	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
19	E015S	E015S	015	015	015	015	E015S	E015S	015	020	018	018	017	019	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
20	E015S	E015S	015	E	015	E015S	E015S	E015S	015	015	015	015	015	015	016	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
21	E015S	E015S	015	015	E	015	E015S	E015S	015	014	015	015	015	018	015	015	015	E015S	E015S	E015S	E015S	E016S	E015S	E015S
22	E015S	E015S	015	015	015	E015S	E015S	E015S	E014S	015	015	015	016	015	015	015	015	E015S	E015S	E017S	E015S	E015S	E015S	E015S
23	E015S	E015S	015	013	015	E015S	E015S	E015S	013	015	016	017	015	017	015	015	015	E015S	E015S	E015S	E015S	E016S	E015S	E015S
24	E015S	015	015	015	015	E015S	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E017S	E015S	E015S	E015S
25	E015S	E015S	015	015	015	015	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
26	E015S	E015S	015	015	E	E015S	E015S	E015S	015	015	015	015	015	017	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
27	E014S	E015S	015	015	015	015	E015S	E015S	015	015	016	016	015	015	020	015	016	E015S	E015S	E015S	E015S	E015S	E015S	E015S
28	E015S	E015S	015	015	015	015	E015S	E015S	015	015	015	018	019	017	023	017	015	E015S	E015S	E015S	E015S	E015S	E015S	E014S
29	E015S	E015S	015	015	014	E014S	E015S	E015S	014	016	020	032	021	020	020	015	016	014	E015S	E016S	E015S	E015S	E015S	E015S
30	E015S	E015S	015	E	014	E015S	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	C	C	C	C
31	E015S	E	015	E	015	015	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
Count	31	31	31	30	30	29	29	29	30	30	30	30	31	31	31	31	31	31	31	31	29	30	30	30
Median	E015S	E015S	015	015	015	E015S	E015S	E015S	015	015	015	015	015	015	015	015	015	E015S	E015S	E015S	E015S	E015S	E015S	E015S
U.Q.																								
L.Q.																								
Q.R.																								

f-min

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 6

IONOSPHERIC DATA

Jan. 1966 | M(3000) F2 | 0.01 | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	290	310	310	305F	350S	U355S	J305S	320	345	360	375	370	295S	J365S	J325S	355	340S	345S	380	J320S	300	J335S	325	295
2	295	300	305	300	S	J355S	300S	325S	360S	J370S	355S	345	320	J360S	J335S	I355S	370	355	350S	320S	285	330S	335S	I305S
3	I305S	300	I300S	315	330	345S	J360S	325	355	355	360	325	350	350	J340S	350	345	325H	345	315	335	305	305	290
4	275S	285S	310	305	305	325	280S	315S	350	360	345S	350	335	335	J340S	350	355	355	345	295S	I330S	295S	295S	I280S
5	265S	280S	J300S	I300S	330	290	335S	J335S	345	J350S	I345S	330	I350S	350S	350	320	U360S	370S	J340S	285S	295	320	295S	280
6	280	275	290S	315	I340S	C	C	C	C	C	C	C	350	315	335	355	350S	360	360	310	295	310S	290	305
7	I300S	295S	305	325	I340S	350	300	305	340	340S	I350S	325S	J320S	355	J315S	350S	365	355S	330S	285	J325S	325	280S	I280S
8	285S	295	310	I335S	335S	315H	275S	I310S	J335S	J355S	375	325H	315	340S	350	360S	J365S	355	345S	I320S	315	310	295S	275S
9	275	275	285S	275S	J325S	370S	265S	290	350	350S	340	370	J320S	340	J335S	305H	360	365S	J350S	U310S	325S	I310S	285	285
10	290	285	275	C	C	C	C	C	350S	340	J350H	340	U325S	355	320S	340S	340	355S	315	J320S	360S	315S	325S	325
11	265S	265S	295S	295	310S	340S	315	290S	370	355	J340S	I370S	J320S	325S	350S	I345S	370	380	J350S	280S	I325S	345	J320S	290S
12	275S	280	310	300	325	345	J340S	J325S	350	J350S	310	365	345H	U330S	360	350	355	355	335S	345	330	330	310	315
13	260	275	270S	315S	300S	285	290	315S	350	365S	345	345	355	355S	335	355S	370	355S	340S	U355S	I330S	315S	360	J365S
14	F	310S	320S	I325S	I340S	310	I285A	310S	345S	370S	365	355	310	330	325	J325S	340	360	350	335S	J335S	300	315	325
15	280	290	J280S	350	305	325F	290S	330	350S	335	360S	350	345	330	345	335	J360S	355	345	325S	J330S	J340S	310H	295
16	280	285	295S	295	335S	290	275	J305S	360	325S	355	355	355	J355S	330	J365S	355	J335S	365	285	285	305S	345S	325
17	285	295S	305	300	315	295	290	315	350	345	365	345	J340S	335	350	355	335	350	355	J350S	280S	330	315	280S
18	275	295S	300	295	J305S	295	310S	S	370	375S	365	330	345S	350	355S	330S	J345S	335	340	U335S	325	315	320S	275
19	275	285	275	285	325	315	285S	305S	380	375	345H	J325S	325	335	365	365	305	U360S	335	285S	360S	I330A	I315S	295
20	285	J275S	280S	295S	325S	335S	J315S	340S	375	365S	360	330	I330S	340	320	360	350	370	315S	340	360	I310A	I285A	265
21	265	I285A	290S	315S	340S	275	285S	295S	335	J355S	320S	U330S	330	340	335	355V	335	340S	365	350	285	290S	305S	280
22	J290S	315S	325S	300S	340	280S	270S	335S	350S	340	340S	315S	345	330	J355S	360	305	C	J310S	J310S	290S	350	I285S	260S
23	290S	290	285	340	345	285	285	285	I335S	325S	340S	I330S	315H	315	315S	J340S	J345H	340	345	315	305	320	I330S	295
24	290	295	300	310	I300S	310S	275S	325	J360S	I330S	330S	315	330S	345S	I335S	355S	320S	320	350	320	325	305	310	290
25	280S	I285S	275	285	300S	345	335S	300	330	330	340S	330	350	325	335	370	345	J335S	320	360	J305S	335	285S	285
26	270	275	I290S	325S	355	375	270S	310S	360	345	360	335	340S	340	340	365S	355	370	330S	325	335	320	I320S	275S
27	280	275	290S	285S	J330S	295S	285	325	350	365	345	330S	345	345	J340S	335S	355	350	325	325S	345	J295S	305	310
28	280	295	290	310	315	330	320	325S	370	355	335	335	J345S	385	335	340	350	365S	345	360S	330S	335S	320	315S
29	285S	310S	310	300	U335S	345S	315	330S	360	355	330	330	330	340	340	355	365	360S	325S	I335S	I310S	340S	280	280S
30	280S	285S	285S	315	295	285S	285	325S	365	360	340	320	J355S	340	355	340	350	355	320	340S	C	C	C	C
31	J310S	290S	295	285	J310S	295	I295S	320S	365S	350	355	350	340	345	345	360	355	365	370	305	330	305	305	330
Count	30	31	31	30	29	29	29	28	30	30	30	30	31	31	31	31	31	30	31	31	30	30	30	30
Median	280	285	295	300	325S	315	290S	320S	350	355	345	330	340	340	340	355	350	355	345	320S	325	320	310S	290
U.Q.																								
L.Q.																								
Q.R.																								

M(3000) F2

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

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IONOSPHERIC DATA

Jan. 1966 | M(3000) F1 0.01 | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	370	L	L	405								
2											L	L	LH	365	375L	L	L	410						
3											L	385	385	365	375	360L	L							
4											365L	380	380	365	355	410	L							
5											345L	380	380	360L	375									
6										C	C	C	370	390	L	L								
7									390	L	L	380	395	380	390L	L								
8											L	L	390	370	365	L	L							
9										L	L	390		370	L									
10										L	L	390	360	405	LH	L	440							
11										L	L	LH	LH	360	LH	L								
12										L		410	415	L	370	L	405							
13											375L	385	L	385	390	L								
14										L	L	405	L	365	370	355								
15											370L	L	L	395	L	L								
16											L	L	380	365	365L	LH								
17											390L	365	355	360	375	L								
18											445	355	385	385	365	L								
19												360	355	385	L	L								
20											L	390	L	L	345L	355	L							
21											355L	350	355L	350L	365	L								
22											L	L	410	370	LH	375								
23										L	L	385	375	370	390	L	L							
24										L	360L	365	370	400	365	L								
25											L	375	375	390	365	425H								
26											L	365	365	385	380	L	L							
27												370	370	370	355	395L								
28												370	395	U400L	395L	L	370							
29												350	355	365	370	380	L							
30										L	L	370	350	370	370									
31											L	380	375	370	385	L	L	L						
Count									1		8	23	24	28	23	9	3	1						
Median									390		370L	380	375	370	370	380	405	410						
U.Q.																								
L.Q.																								
Q.R.																								

M(3000) F1 Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

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IONOSPHERIC DATA

Jan. 1966 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											245	240	325	240	250	240								
2											255	245	280	245	275	240	225	220						
3											245	255	250	260	250	250	240							
4											250	255	275	250	260	245	230							
5											300	270	260	245	255									
6										C	C	C	250	270	245	240								
7									245	250	230	270	235	245	250	240								
8											240	240	305	250	255	235	240							
9										250	260	240		245	245									
10										260	225	255	290	245	275	250	230							
11										240	250	230	290	280	250	250								
12										245		240	255	270	245	240	235							
13											255	245	240	250	260	245								
14										235	230	240	310	275	250	275								
15											245	255	245	290	255	265								
16											240	240	260	245	270	235								
17											240	255	265	250	245	240								
18											230	280	245	250	245	250								
19												290	275	250	245	230								
20											240	280	255	260	270	245	245							
21											275	280	255	260	255	240								
22											250	270	250	275	240	240								
23										265	240	250	240	250	250	245	240							
24										235	255	270	255	245	245	230								
25											255	255	250	255	255	230								
26											245	280	255	245	270	230	230							
27												270	255	260	250	270								
28												275	270	225	260	255	245							
29												280	280	255	260	245	230							
30										245	275	295	245	265	250									
31											255	270	275	280	270	250	240	235						
Count									1	9	25	30	30	31	31	28	12	2						
Median									245	245	245	255	255	250	250	240	240	230						
U. Q.																								
L. Q.																								
Q. R.																								

h'F2 | Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 9

IONOSPHERIC DATA

Jan. 1966 | h'F | km | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	305	265	260	285	230	195	S	255	230	240	250	225	205	255	205	200	220H	230	200	230	275	225	245	E280S
2	300	300	275	250	250	210	E290H	240	225	225	220	200	190H	245	220	225H	220	195	200	225	E260S	250	225	230
3	285	E280S	295	270	255	215	215	230	235	200H	240	225	225	220	220	225	220	210	210	245	215	250	240	285
4	300	300	270	225	245	225	E310S	240	230	240H	225	225	225	220	205	205	200	225	200	250	250	250	255	270
5	330	320	260	275	230	240	200	240	230	240	240	235	215	225	235	190H	235H	220	210	E245A	250	245	270	300
6	305	300	295	270	245	C	C	C	C	C	C	C	205	195	270	230	225	210	200	250	260	245	255	265
7	275	285	260	250	210	210	255	260	195	175H	225	220	215	200H	225	250	225	215	200	240	240	240	280	305
8	275	270	260	250	225	205	E325S	250	240	240	235	225	220	240	215	230	190H	210	200	210	250	240	250	280
9	300	300	300	300	245	200	E390S	270	225	240	240	220	180H	200	205H	200H	235	205	215	235	225	220	280	285
10	270	295	300	C	C	C	C	C	220	250	225	220	240	210	200H	200	205	210	220	245	210	250	225	250
11	340	310	305	280	255	205	280	225	225	230	220	200H	175H	250	205H	230	230	205	210	240	240	225	250	300
12	E340A	335	280	270	240	220	E300S	250	230	240	230H	225	215	250	220	200	210	220	200	210	230	240	250	265
13	E350S	320	300	270	270	290	265	230	225	225H	230	215	235	225	190	180H	230	225	200	200	I240S	225	230	S
14	350F	295	280	240	250	250	A	255	245	230	220	200	190	200	210	200	230	225	200	E220S	240	250	250	245
15	320	300	310	250	270	240	E275S	250	230	205H	230	220H	210H	200	250	240	240	220H	205	250	245	210	240	E250S
16	E290S	300	300	275	225	250	SH	270	225	230	225	210	245	205H	220	195H	225	245	200	E250S	300	250	235	245
17	310	295	280	280	250	230	280	250	240	240	215	200	205	230	205	215	230	220	200	200	265	240	225	E310S
18	300	275	270	300	300	260	250	225	225	215H	190	230	210	220	220	195	230	230	220	200	215	250	245	265
19	330	300	300	300	250	250	300	235	215	225	230	270	245	240	255	205	240	220	220	250	220	A	320	280
20	275	300	345	280	250	225	255	245	220	210H	200H	230	200H	240	240	225	225	210	245	245	210	A	A	E370A
21	325	I330A	310	255	240	300	255	240	230	215H	245	240	225	240	230	220	210H	245	205	215	250	295	250	300
22	280	295	245	280	240	325	E350A	255	230	250	250	240	210	220	220H	210	205H	235	205	240	255	225	255	320
23	280	270	310	230	230	E320S	E325S	250	240	230	230	205	210	195	195H	245	225	225H	215	195	250	230	250	255
24	280	275	280	260	250	250	300	255	225	240	205	225	205	195	190	230	230H	215	225	260	230	250	240	310
25	300	300	315	340	295	230	225	250	200H	220H	225	225	205	200	200H	200	210H	180H	205	200	240	230	250H	300
26	E350S	345	300	245	210	210	E350S	250	225	230	240	215	200	215	205	235	230	230	250	250	225	245	A	325
27	310	330	335	295	250	255	E320S	255	230	225	200H	230	195	220	240	210	230	230	210	225	225	255	260	E300S
28	340	300	290	270	270	235	250	245	225	230	225H	220	200	225	195	195H	200	235	220	200	205	240	250	280
29	305	295	280	300	255	225	255	240	215	200H	250	210H	225	240	230	205	220	225	205	230	270	220	E280S	300
30	300	310	295	250	280	275	295	250	225	240	220	220	210	230	220	200H	200H	200H	215	215	C	C	C	C
31	275	310	300	305	275	275	300	245	230	225	220	205	200	200	195	225	230	220H	215	250	225	230	260	225
Count	31	31	31	30	30	29	26	29	30	30	30	30	31	31	31	31	31	31	31	31	30	28	28	29
Median	300	300	295	270	250	230	U260	250	2[illegible]	230	225	220	210	220	220	210	225	220	205	230	240	240	250	275
U.Q.																								
L.Q.																								
Q.R.																								

h'F | Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Jan. 1966 | h'Es | km | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	B	B	B	B	S	S	160	160	150	140	130	120	155	G	G	G	120	100	100	100	S	S
2	S	S	B	E	E	S	S	S	G	105	G	G	105	155	G	155	100	100	100	100	100	100	100	S
3	S	S	B	B	B	B	S	S	G	100	105	150	150	100	G	G	100	105	095	095	S	S	S	S
4	S	S	S	E	100	S	S	S	G	G	115	150	G	105	100	150	G	S	100	100	100	100	S	S
5	S	100	B	B	B	B	S	S	S	G	170	150	150	110	105	105	G	100	095	095	095	095	S	S
6	S	B	B	105	100	C	C	C	C	C	C	C	G	105	100	100	150	150	100	100	S	S	S	105
7	S	S	B	B	B	B	100	S	G	G	G	170	100	100	100	150	100	150	S	S	S	S	S	S
8	S	S	B	B	B	S	S	S	S	170	165	100	150	140	100	G	G	S	095	100	S	S	S	S
9	S	S	B	B	105	100	100	100	155	155	110	130	110	105	100	100	G	145	S	095	S	S	S	S
10	S	S	B	C	C	C	C	C	G	G	G	G	G	155	100	105	100	S	S	S	S	S	S	S
11	S	S	B	100	100	100	100	S	G	140	110	125	110	105	100	100	G	100	S	S	120	S	S	S
12	100	B	B	B	B	S	100	S	G	G	175	125	125	160	150	145	130	115	S	105	105	S	S	100
13	S	S	B	B	B	S	S	S	G	G	105	105	105	150	100	G	G	S	S	S	S	120	S	105
14	115	S	B	B	B	S	100	100	100	G	105	105	G	G	G	G	110	G	S	S	100	100	S	100
15	S	S	B	B	B	S	S	S	G	G	G	160	115	115	110	G	G	S	S	105	S	S	S	S
16	S	105	B	B	E	S	S	S	150	G	G	105	G	100	100	100	100	095	095	S	110	100	100	100
17	S	S	B	B	B	E	S	S	G	110	110	130	125	120	125	120	115	150	S	S	110	105	S	S
18	S	S	B	B	B	B	S	S	G	G	G	120	E170G	110	105	105	110	G	140	125	125	S	S	S
19	S	S	B	B	B	B	S	S	115	G	170	155	150	145	130	125	G	G	S	100	100	100	100	105
20	110	S	B	105	B	105	S	S	G	G	G	120	120	120	120	115	110	105	105	110	110	110	105	110
21	110	110	105	105	105	105	105	105	G	125	125	150	110	G	115	110	105	105	105	105	S	S	S	S
22	S	105	100	100	B	S	105	105	105	160	G	105	175	150	155	100	105	105	100	105	140	095	095	S
23	S	100	B	105	B	S	S	S	155	110	G	105	G	G	100	100	100	100	100	S	S	100	100	100
24	S	B	B	B	B	S	100	100	150	140	130	105	G	125	100	100	160	130	100	110	110	105	105	S
25	S	S	B	105	B	B	S	105	105	G	125	115	110	115	100	100	140	100	100	S	S	S	S	S
26	S	S	B	B	E	S	S	S	G	170	100	120	100	105	105	100	095	095	095	095	100	100	095	095
27	S	S	105	105	105	B	S	S	120	115	G	100	100	100	G	100	G	100	S	100	100	125	100	S
28	S	S	B	B	B	B	S	S	G	G	155	135	105	105	G	105	100	G	S	S	S	S	S	S
29	S	S	B	B	B	S	S	S	G	G	G	165	150	170	150	100	100	135	095	095	095	S	S	S
30	S	S	B	E	B	S	S	S	G	G	G	130	135	120	G	125	G	G	S	S	C	C	C	C
31	S	115	110	105	B	B	S	S	G	G	130	125	120	125	120	G	115	110	S	S	S	S	105	S
Count	4	6	4	9	6	4	8	6	10	13	18	28	24	28	25	24	20	20	17	19	17	15	10	9
Median	110	105	105	105	100	100	100	100	135	140	125	125	120	120	105	105	105	105	100	100	100	100	100	100
U.Q.																								
L.Q.																								
Q.R.																								

h'Es

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 11

IONOSPHERIC DATA

Jan. 1966 | Types of Es | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									h3	h	h2	h2	c 1	1 1	h				f	f	f	f2		
2										12			12	h		h	12	12	f2	f	f	f2	f	
3										1	13	h 12	h 1	12h			1	1 1	f2	f2				
4					f						12	h		12	1	h			f	f2	f	f		
5		f									h 1	h 1	h 1	1	12	1		1	f2	f2	f2	f2		
6				f	f2									1	1	12h	h 1	h21	f	f				f
7							f					h 1	1	1	1	h 1	1	h						
8										h	h	1	h	h 1	1				f	f				
9					f	f	f2	1	h	h	12h	h 1	1	1	1	1		h 1		f				
10														h 1	1	1	1							
11				f	f2	f	f			h	c	h	c	1	1	12		1			f			
12	f2						f				h	h	h	h	h	h	h 1	c21		f	f			f
13											1	1	1	h	1							f		f
14	f						f2	12	1		1	1					1				f	f		f
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16		f							h2			1		12	12	1	12	12	f2	f	f2	f	f	f
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19									1		h	h	h	h	h	h				f	f	f3	f3	f
20	f			f		f						c2	c	c	c2	c	12	14	f3	f5	f3	f3	f3	f3
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Types of Es

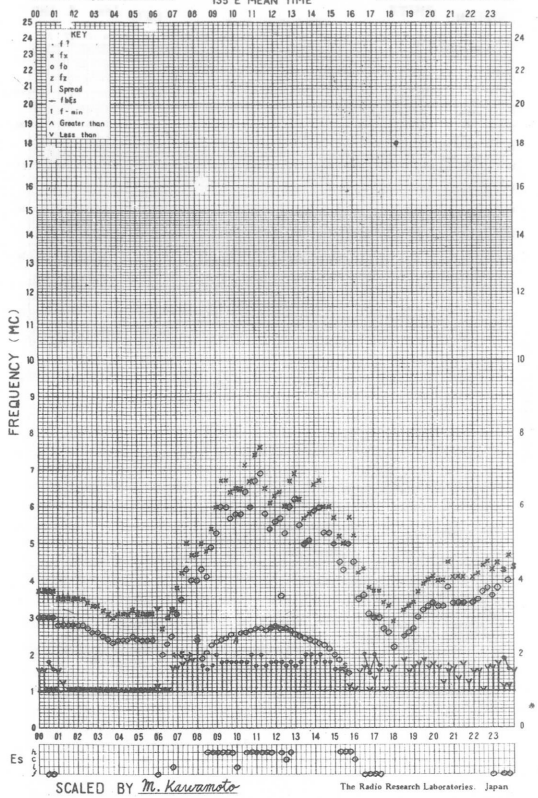
Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 12

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JAN. 1.1966



SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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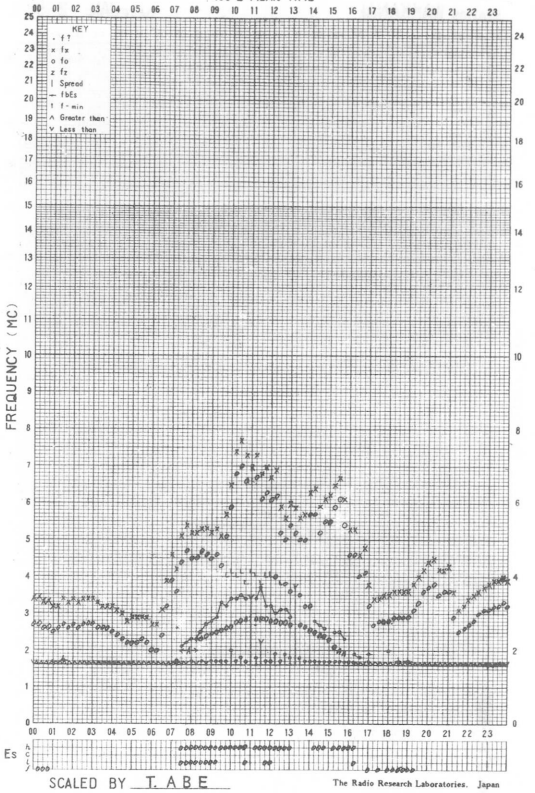

SCALED BY T. ABE The Radio Research Laboratories. Japan

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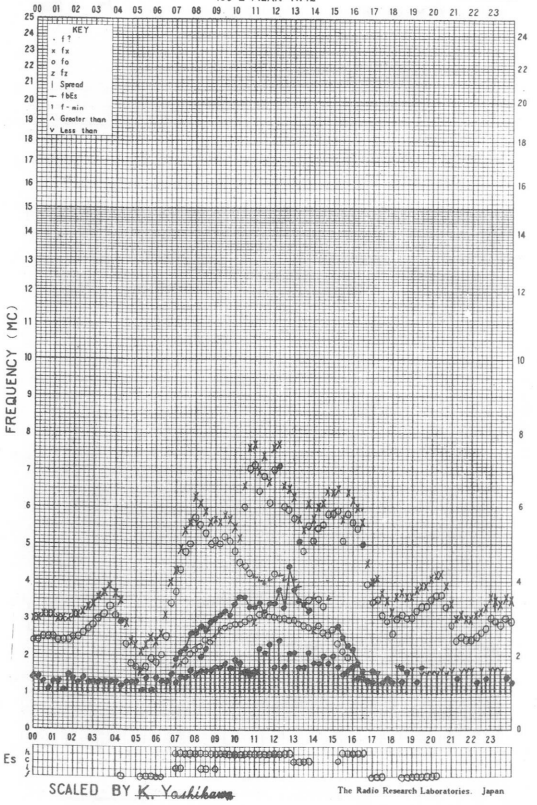

SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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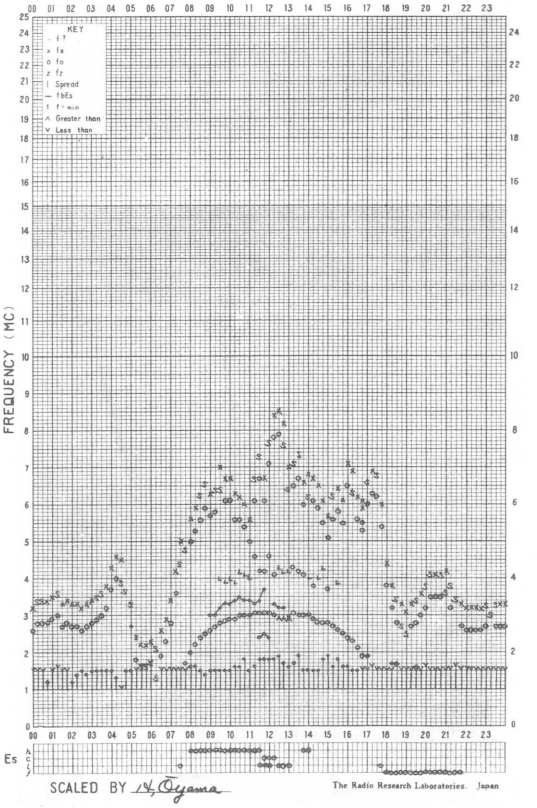
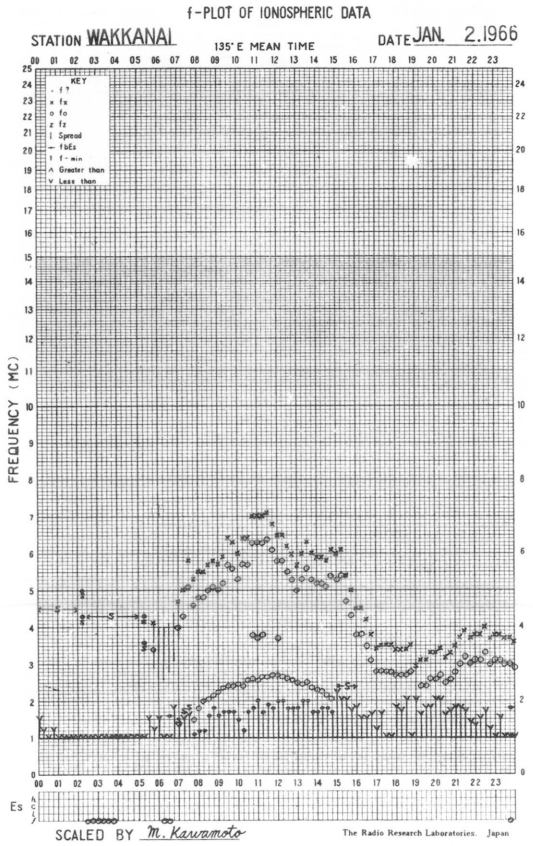
STATION YAMAGAWA 135°E MEAN TIME DATE JAN. -1.1966



SCALED BY H. Ogawa The Radio Research Laboratories. Japan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STATION WAKKANAI
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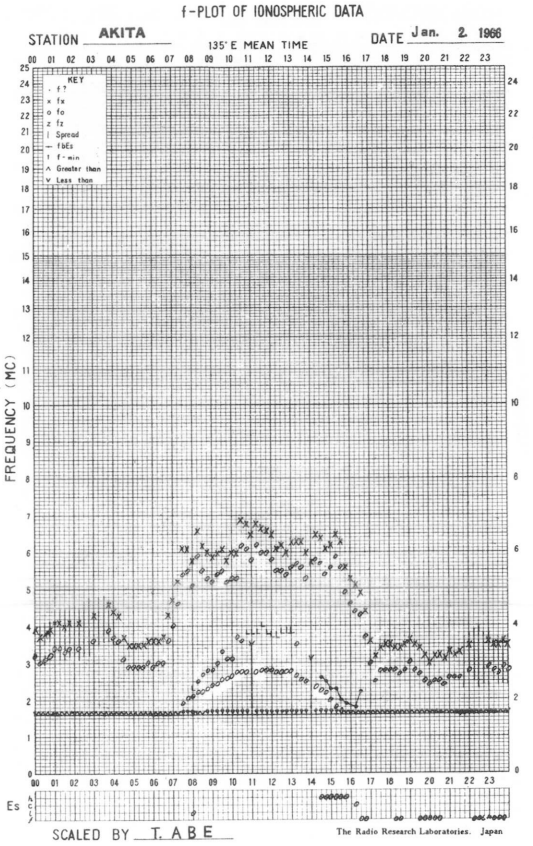
SCALED BY M. Kawamoto
The Radio Research Laboratories. Japan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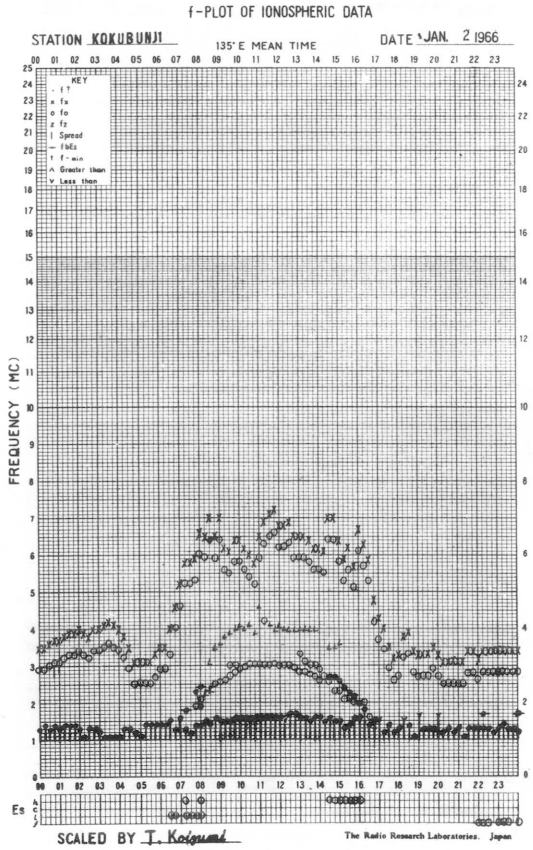
SCALED BY T. ABE
The Radio Research Laboratories. Japan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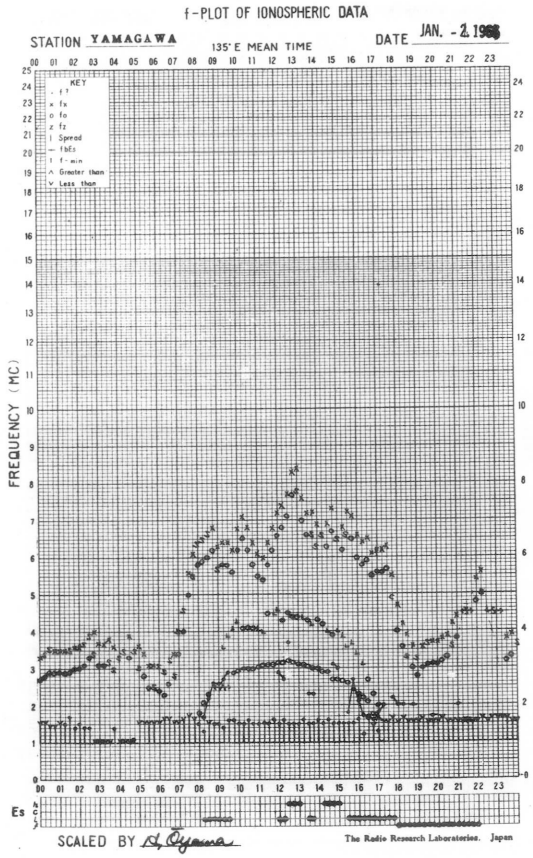
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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DATE JAN. 2. 1966
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SCALED BY A. Oyama
The Radio Research Laboratories. Japan

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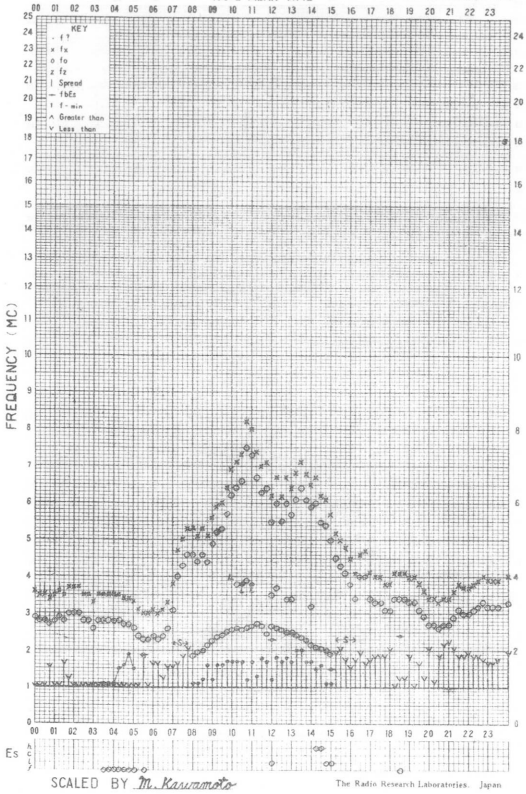

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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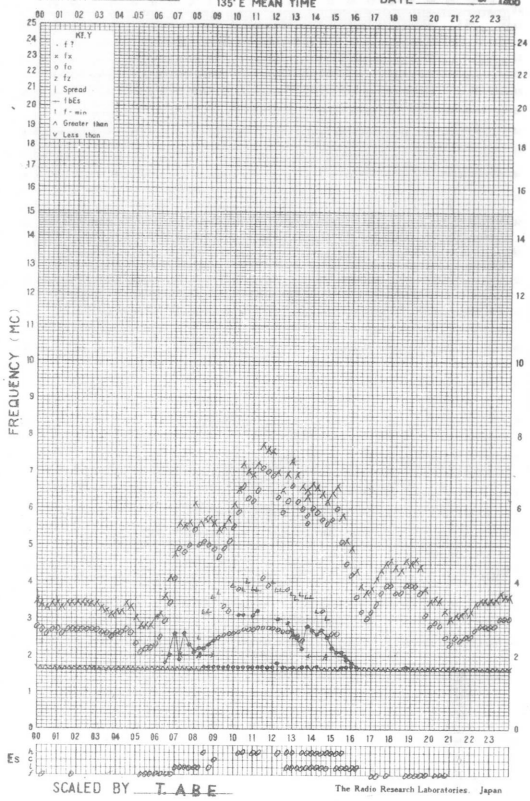

SCALED BY T. ABE The Radio Research Laboratories. Japan

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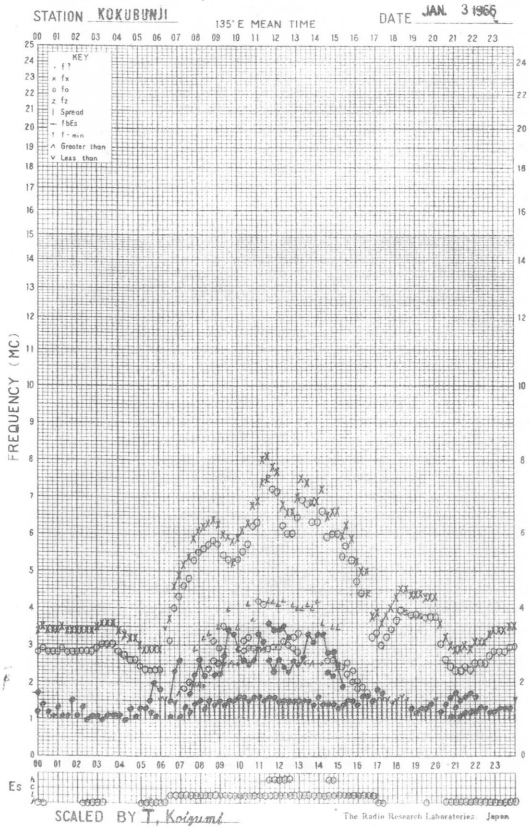

SCALED BY T. Koizumi The Radio Research Laboratories. Japan

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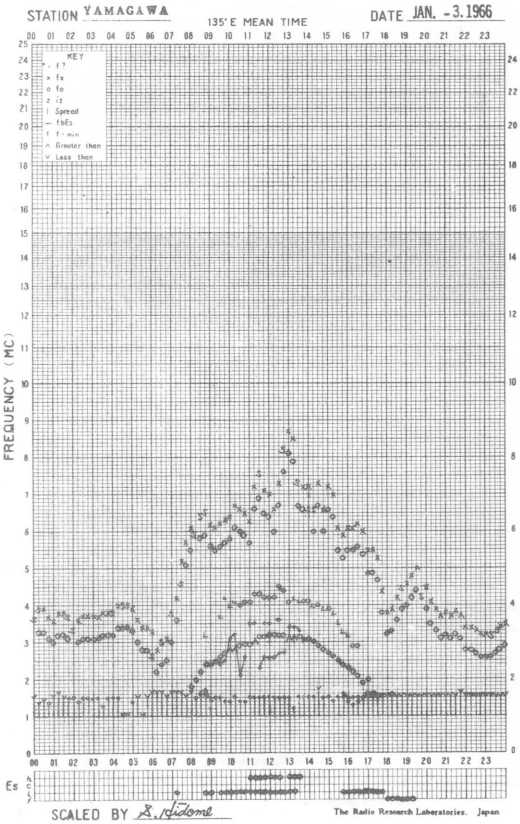

SCALED BY S. Ishidome The Radio Research Laboratories. Japan

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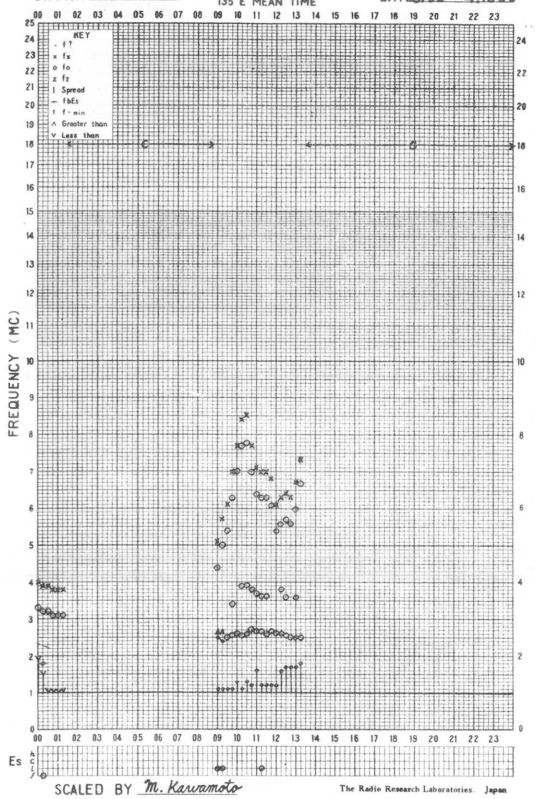

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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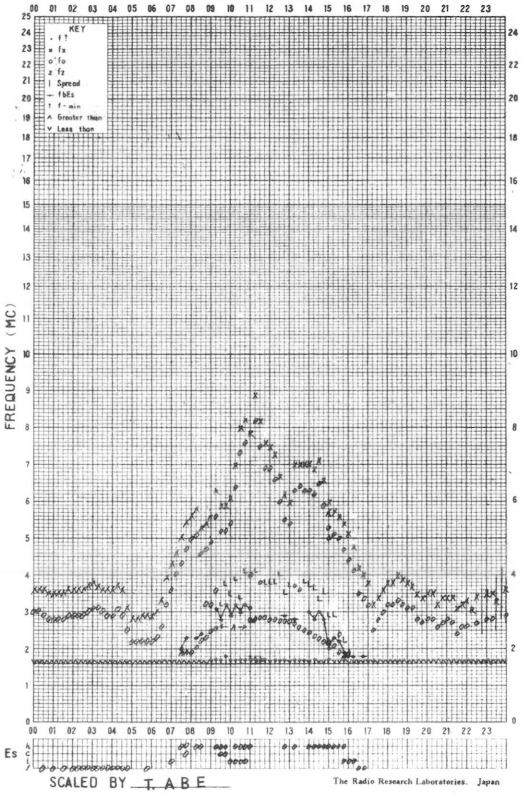

SCALED BY T. ABE The Radio Research Laboratories. Japan

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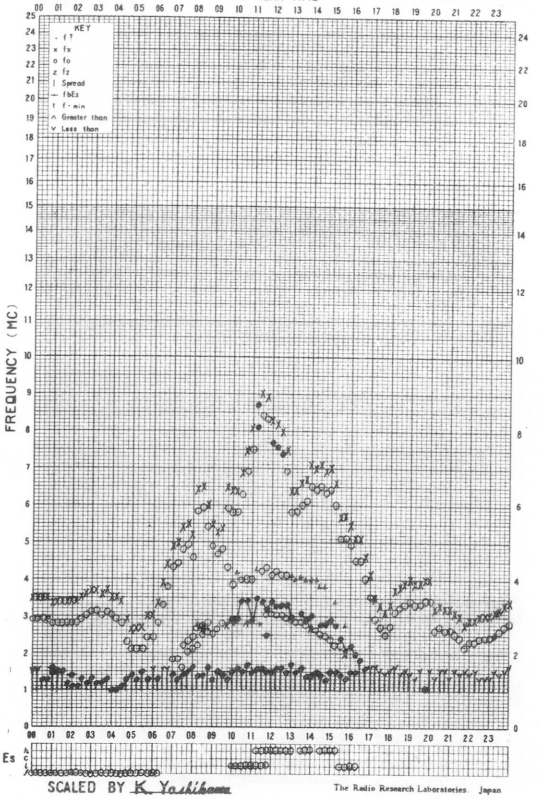

SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

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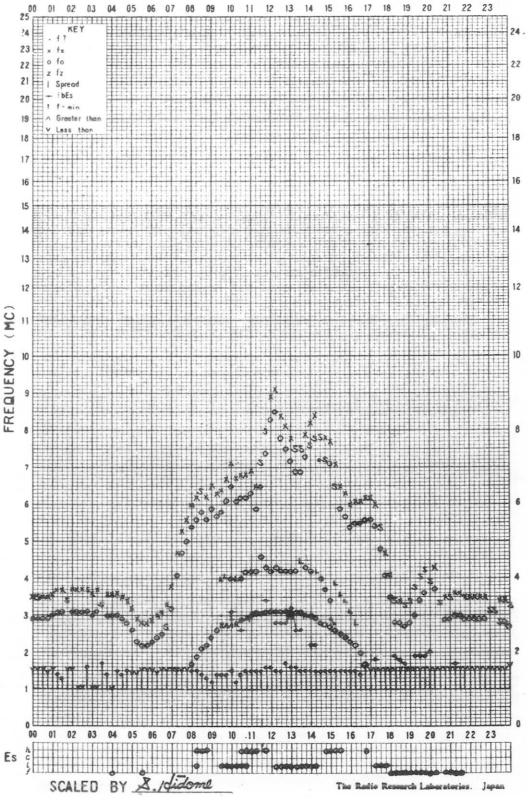

SCALED BY S. Kidomi The Radio Research Laboratories. Japan

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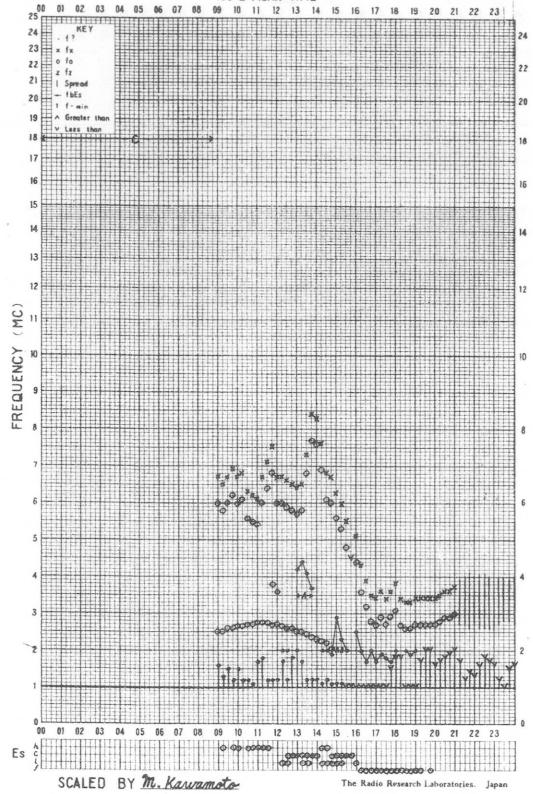

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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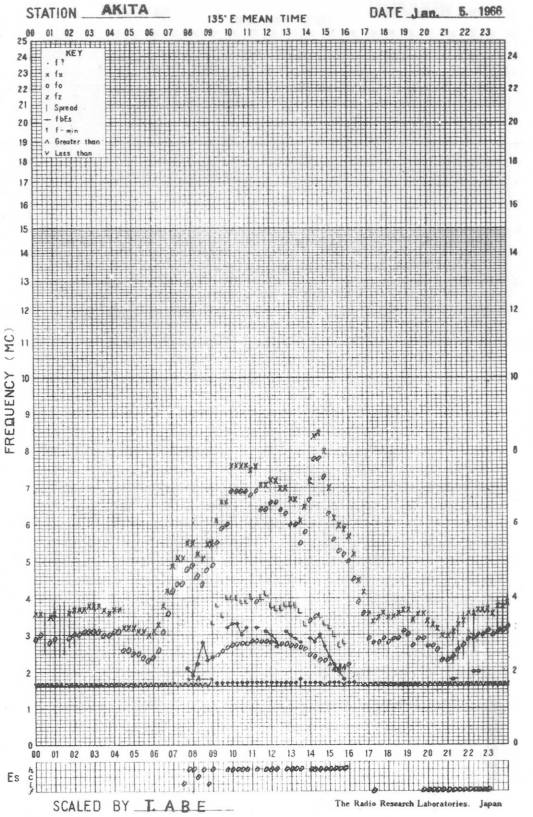

SCALED BY T. ABE The Radio Research Laboratories. Japan

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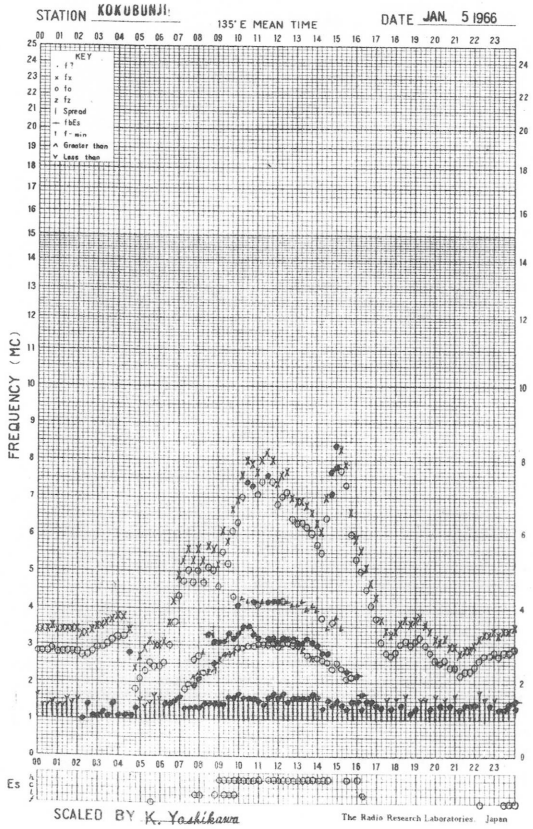

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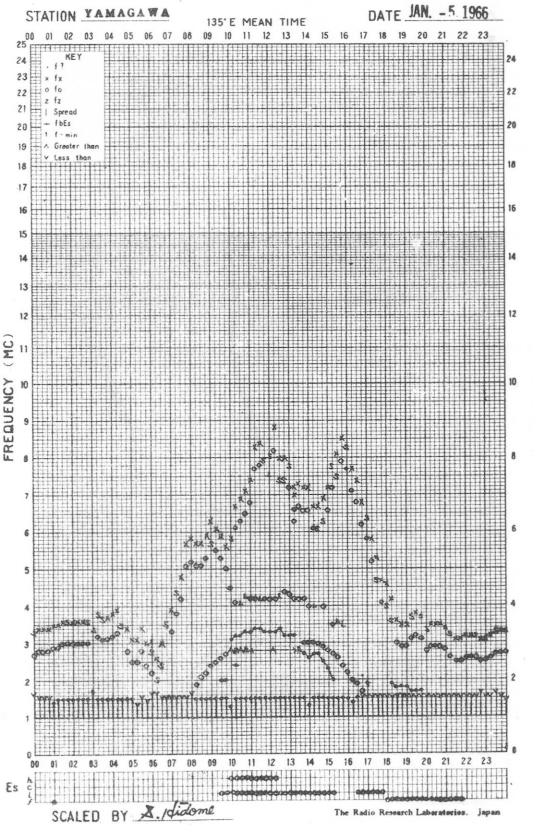

SCALED BY S. Ichidome The Radio Research Laboratories. Japan

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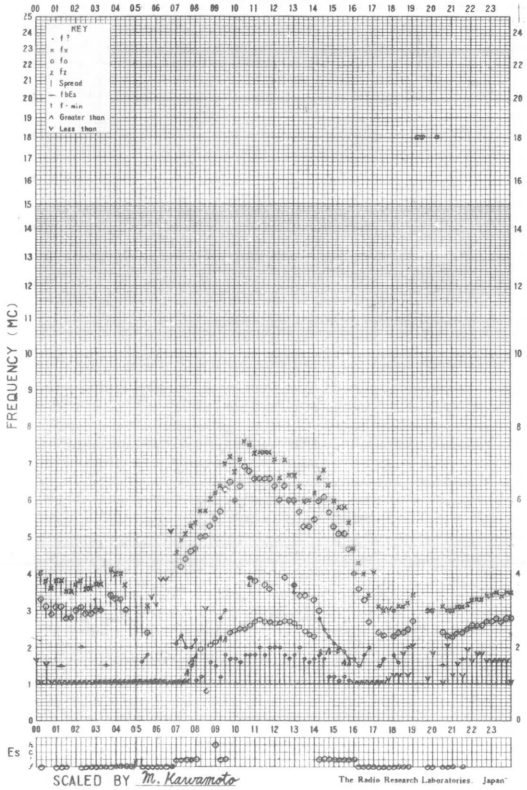

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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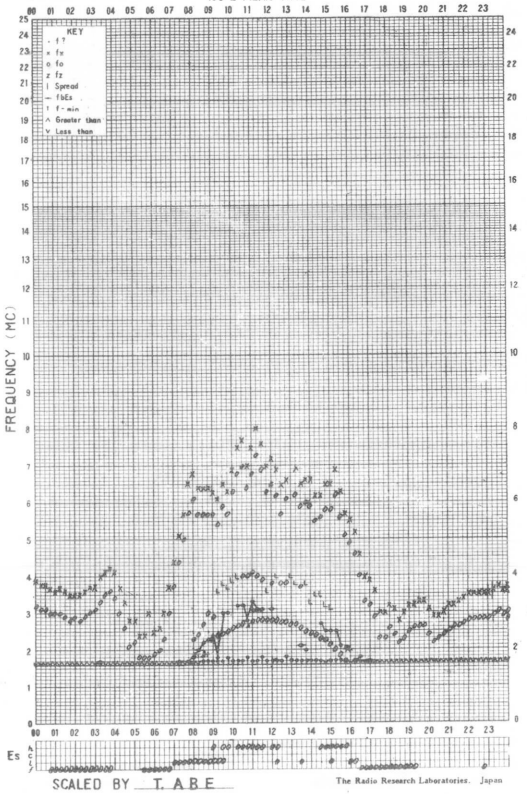

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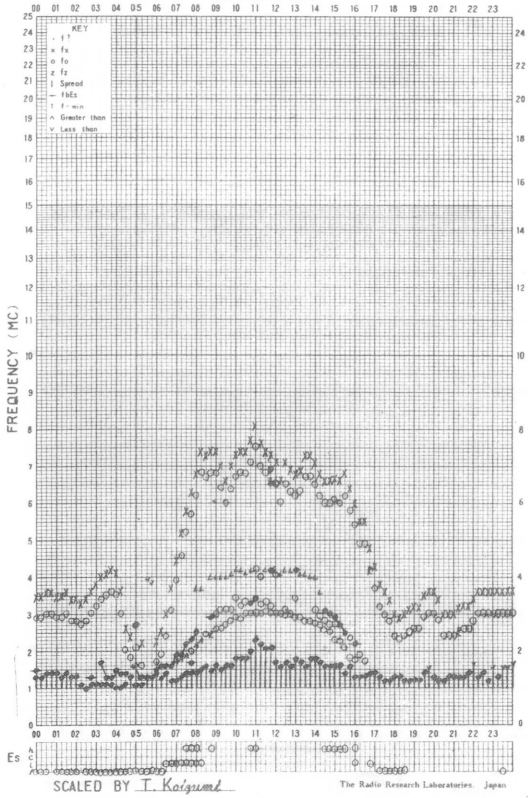

SCALED BY T. Koizumi The Radio Research Laboratories. Japan

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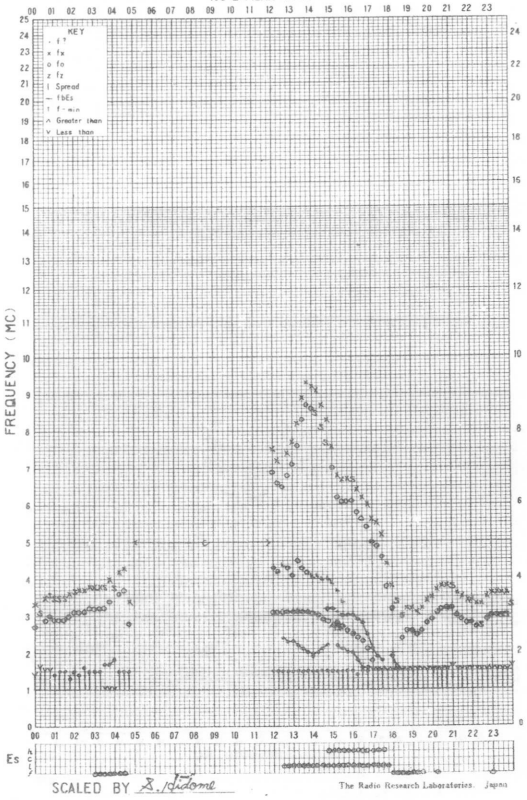

SCALED BY S. Kidome The Radio Research Laboratories. Japan

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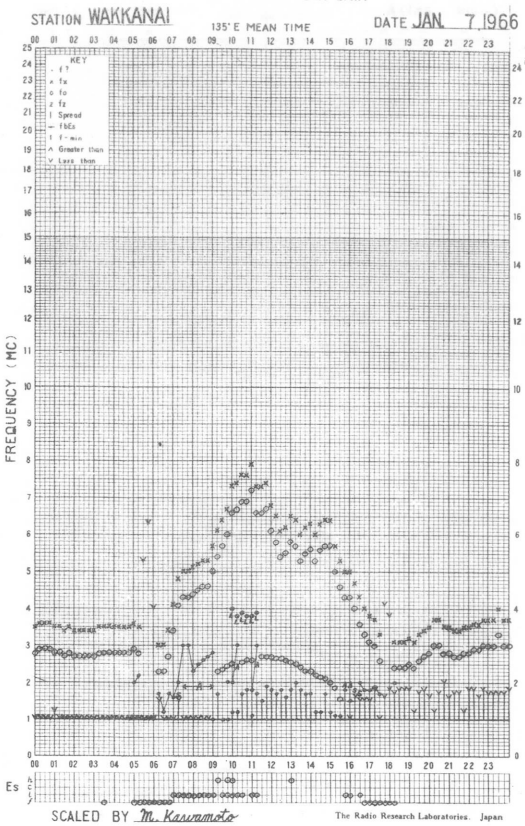

SCALED BY M. Kasuamoto The Radio Research Laboratories. Japan

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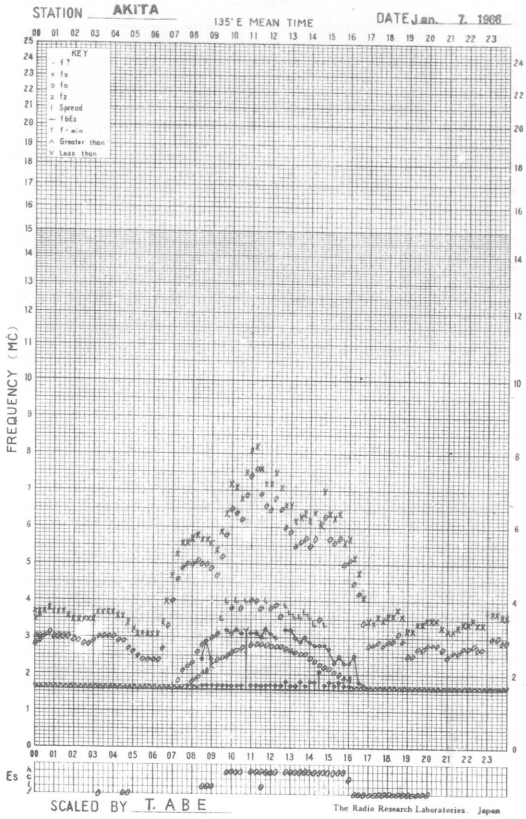

SCALED BY T. A B E The Radio Research Laboratories. Japan

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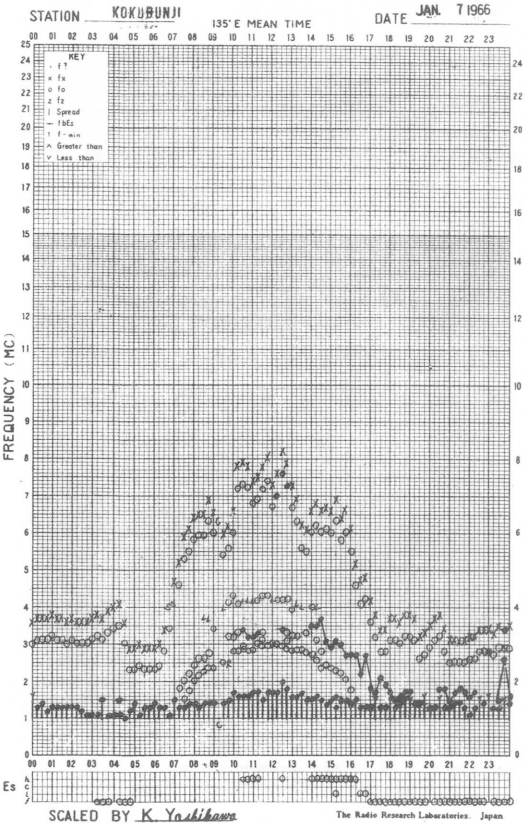

SCALED BY K. Yashikawa The Radio Research Laboratories. Japan

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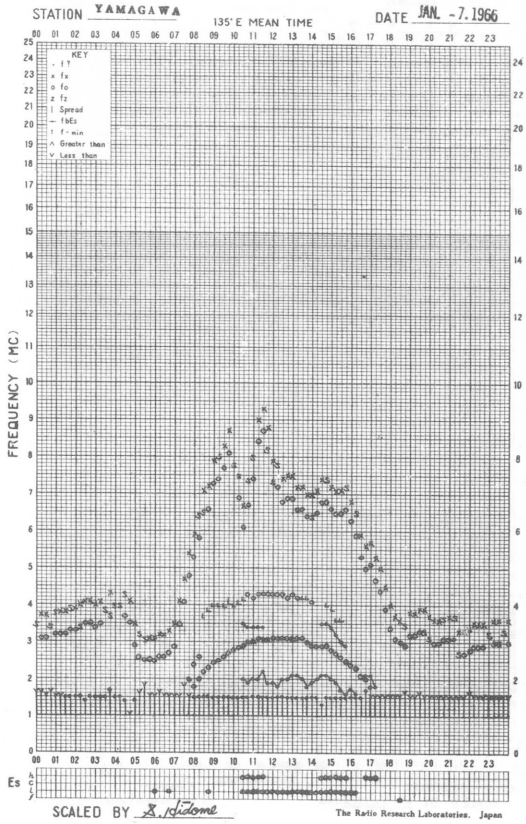

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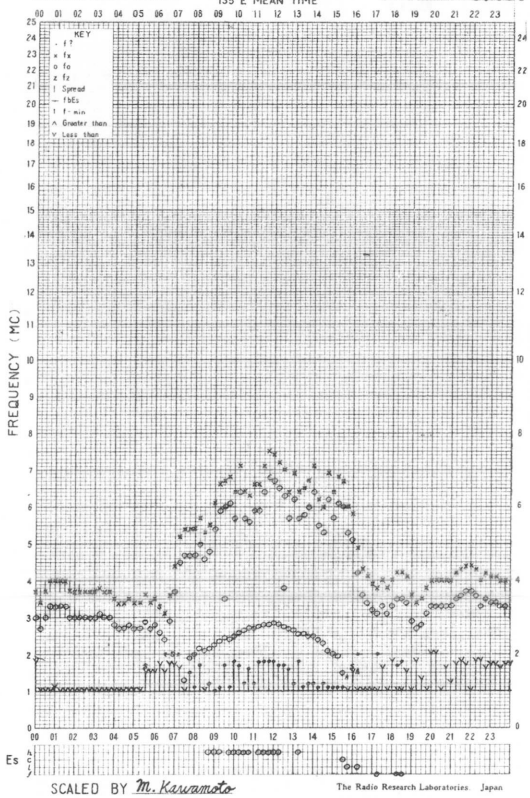

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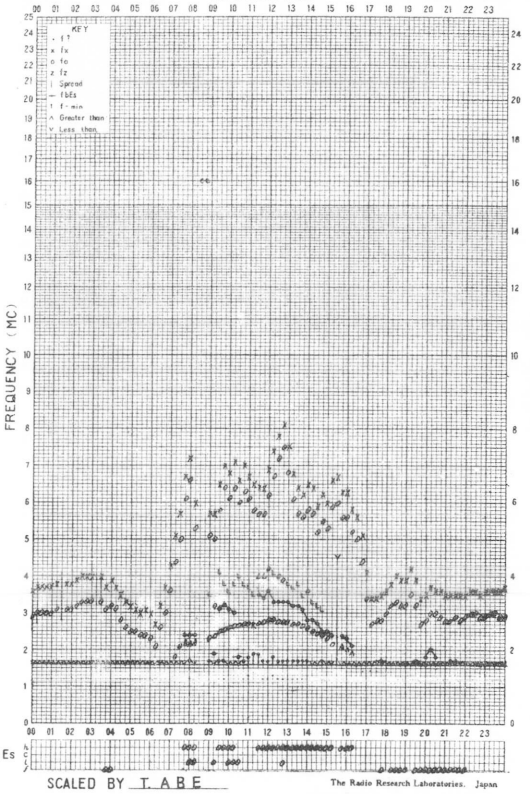

SCALED BY T. ABE The Radio Research Laboratories. Japan

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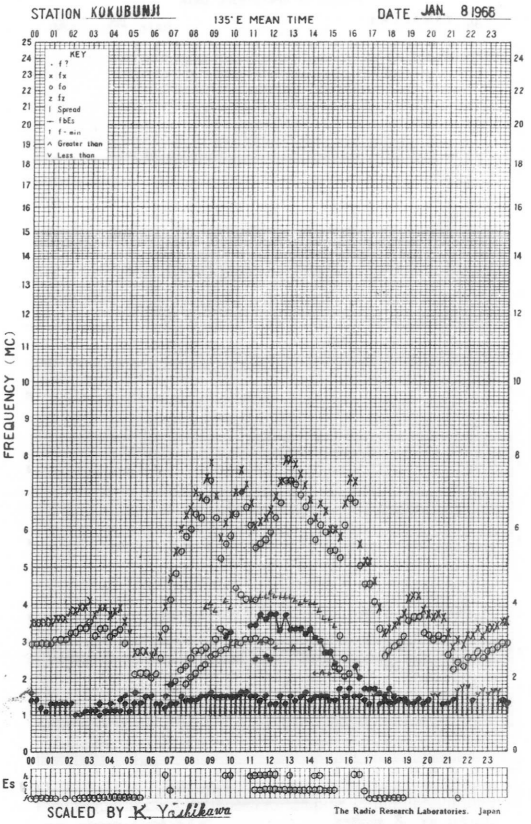

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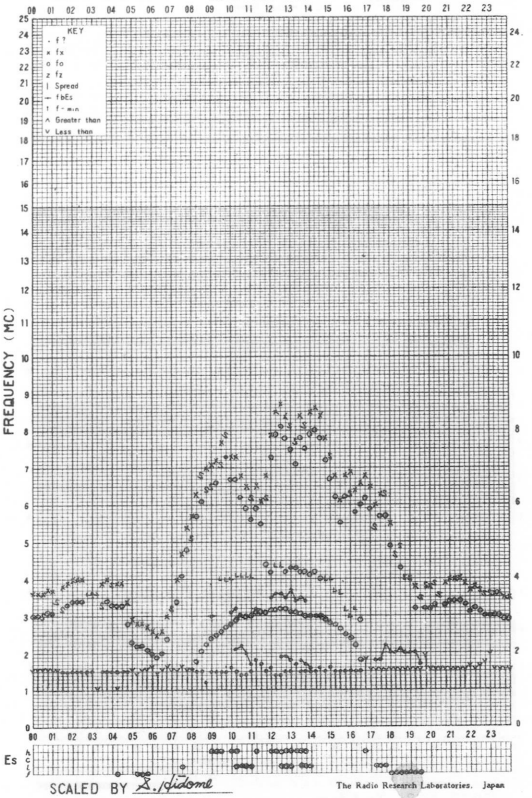

SCALED BY S. Fidome The Radio Research Laboratories. Japan

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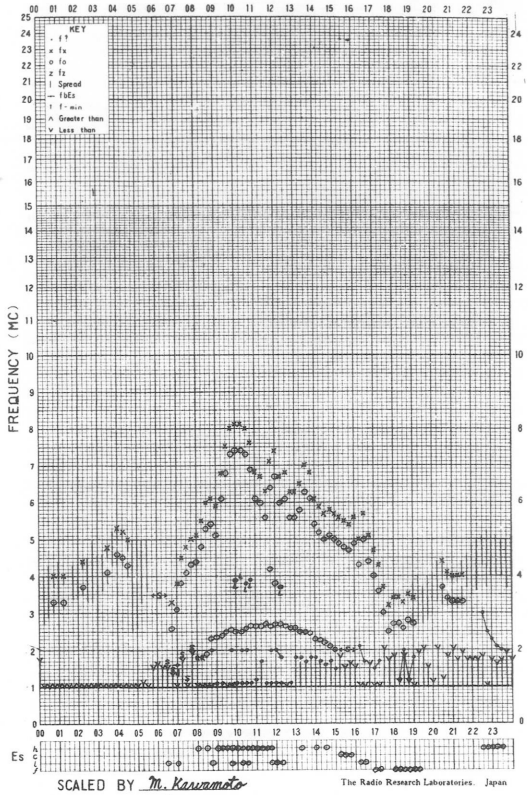

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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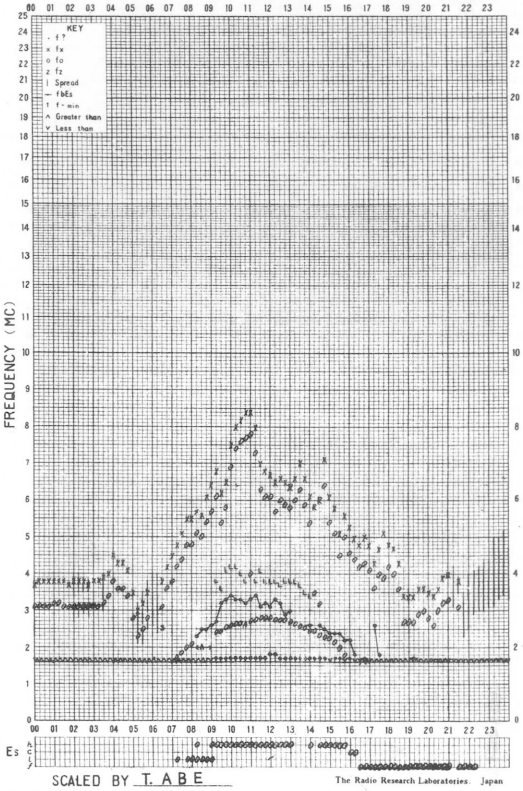

SCALED BY T. ABE The Radio Research Laboratories. Japan

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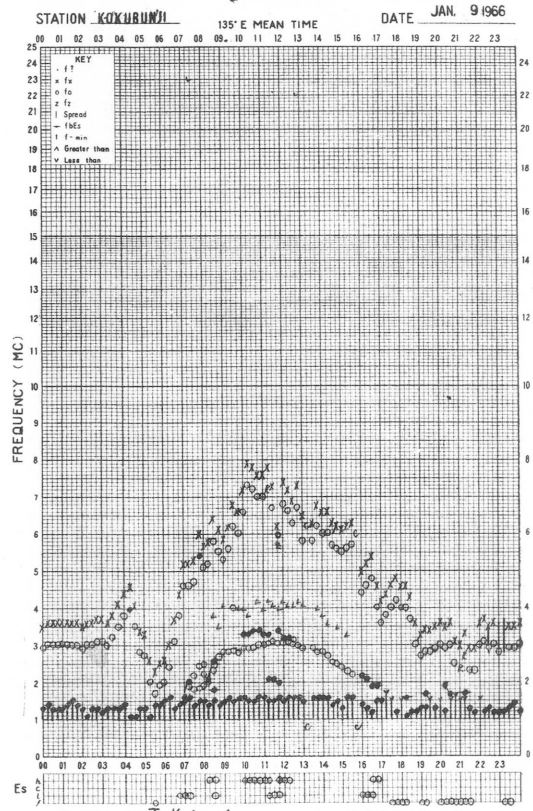

SCALED BY T. Koizumi The Radio Research Laboratories. Japan

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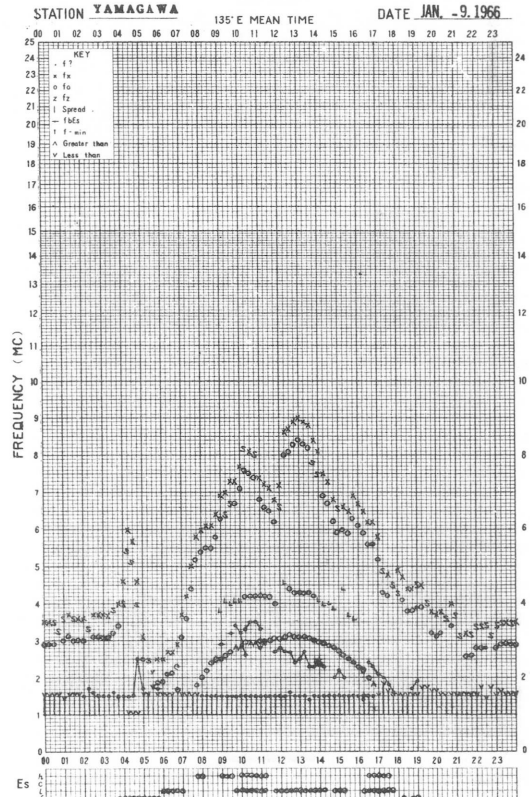

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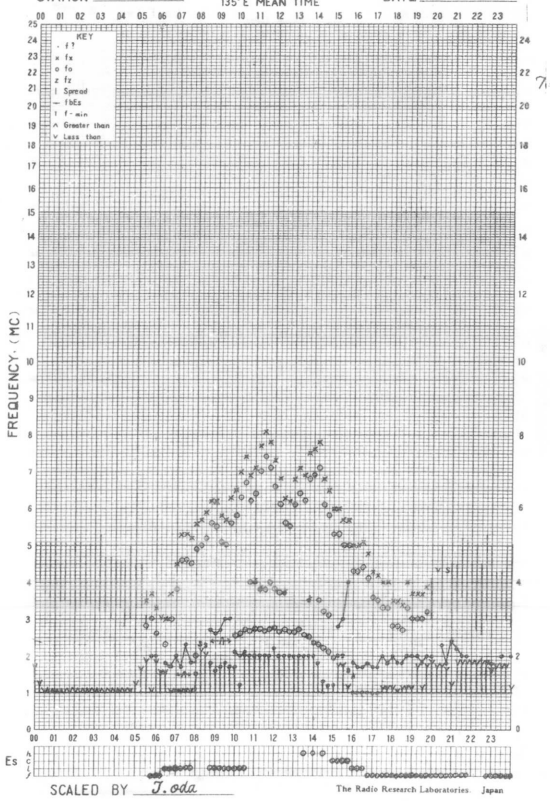

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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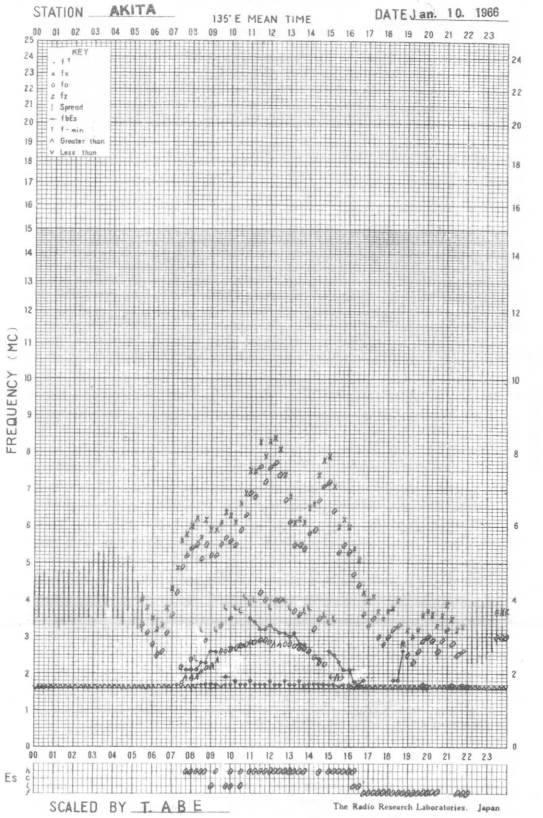

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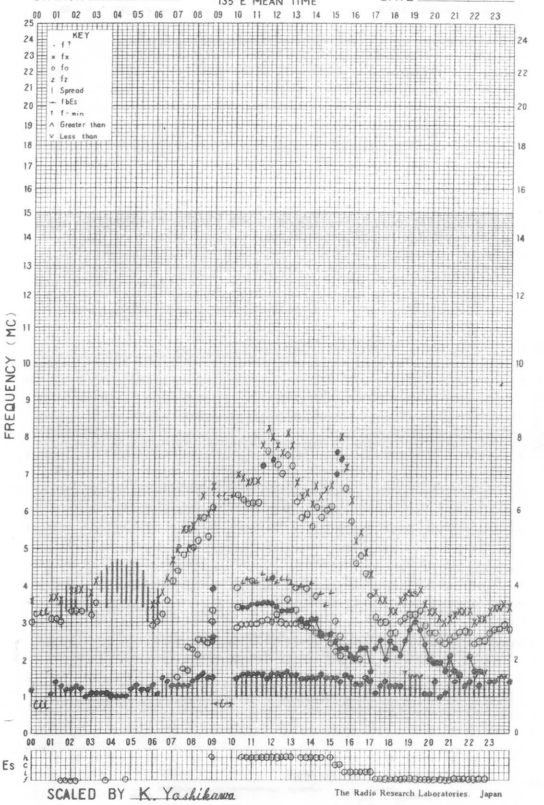

SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

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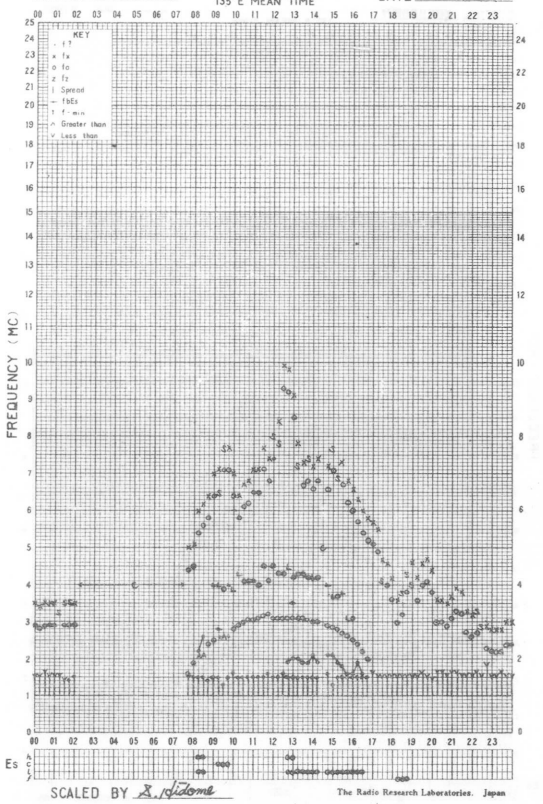
STATION YAMAGAWA 135° E MEAN TIME DATE JAN. 10. 1966



SCALED BY S. Shitomi

The Radio Research Laboratories. Japan

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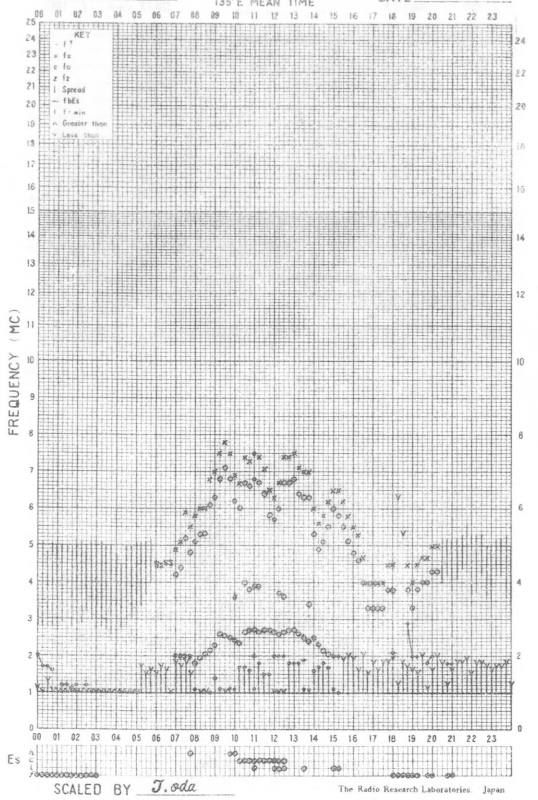

SCALED BY T. oda

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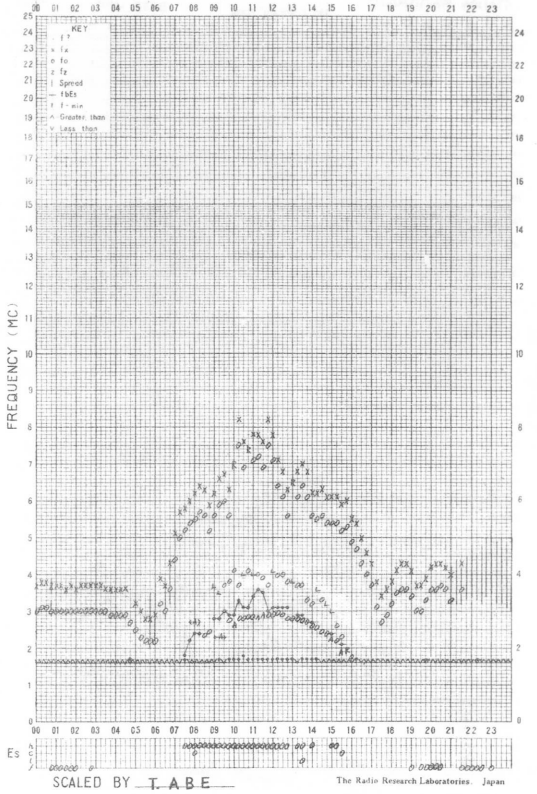

SCALED BY T. ABE

The Radio Research Laboratories Japan

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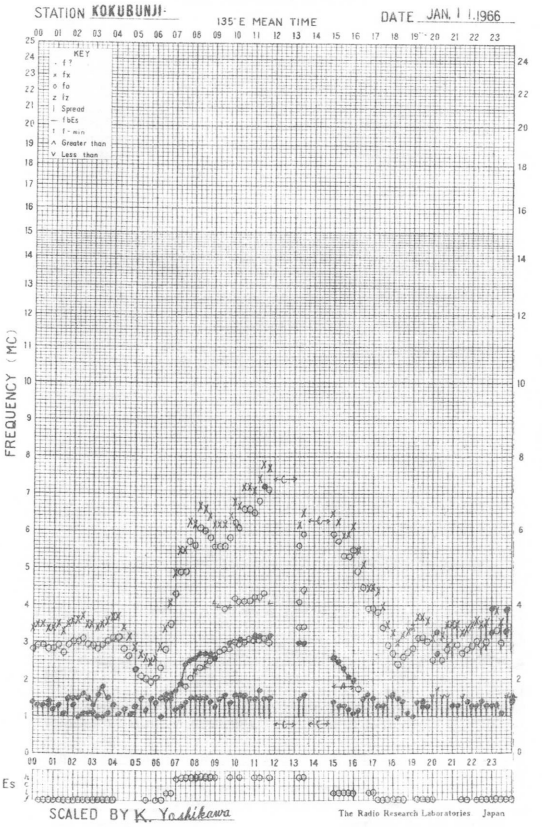

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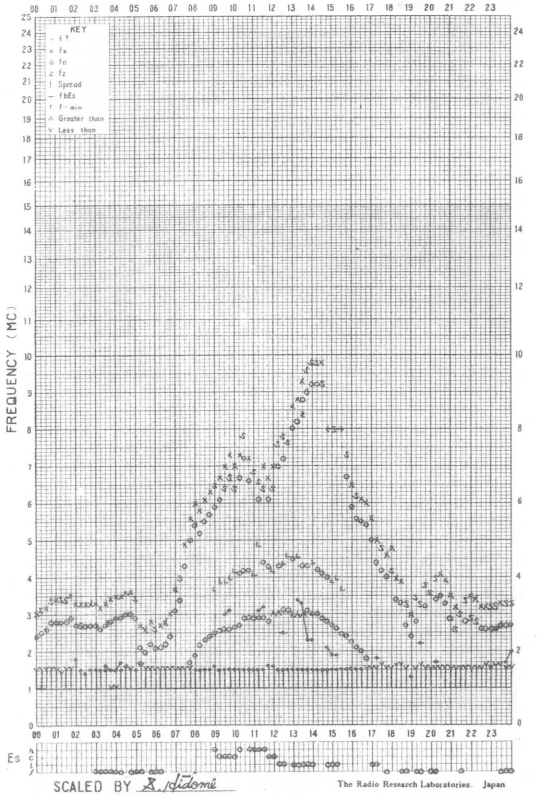

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The Radio Research Laboratories Japan

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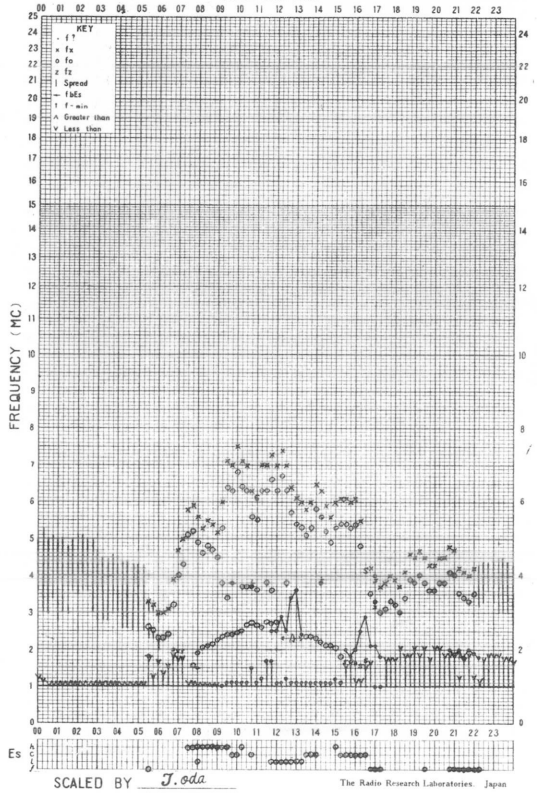

SCALED BY J. Oda

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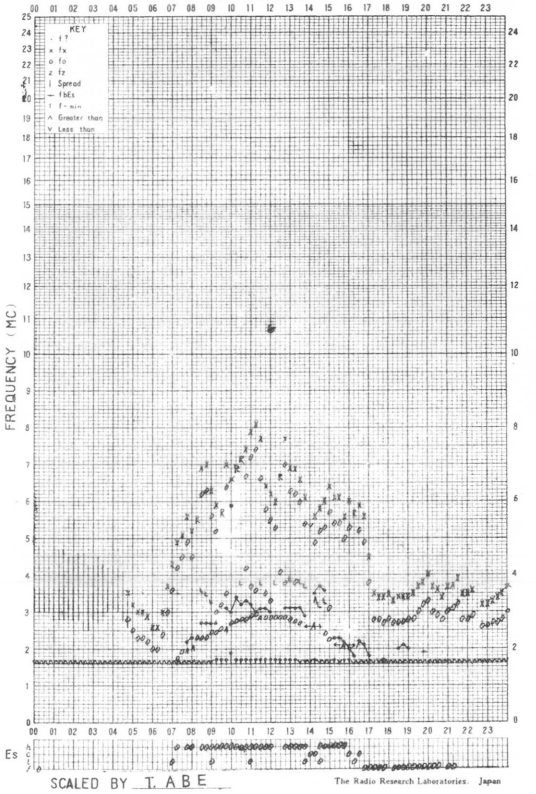

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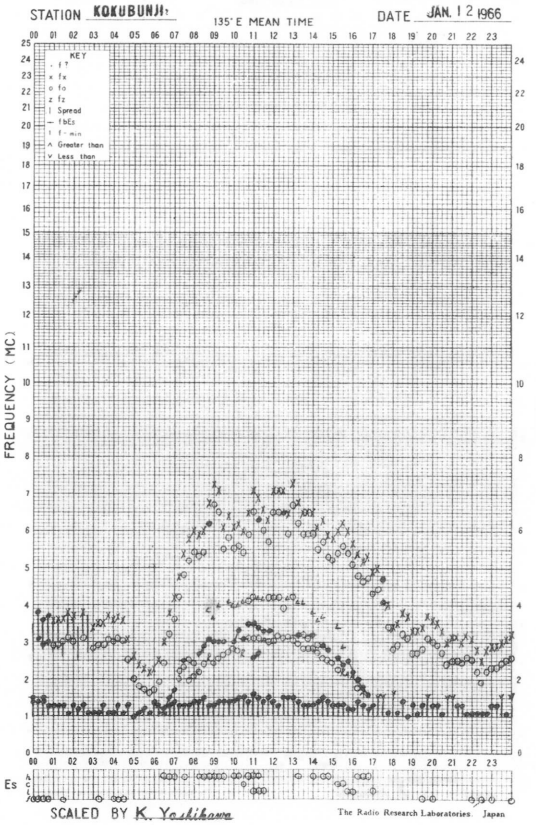

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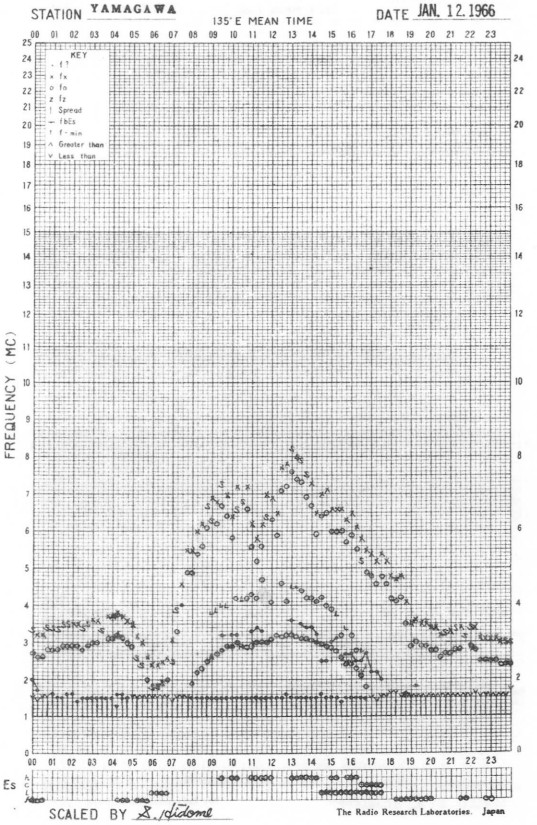

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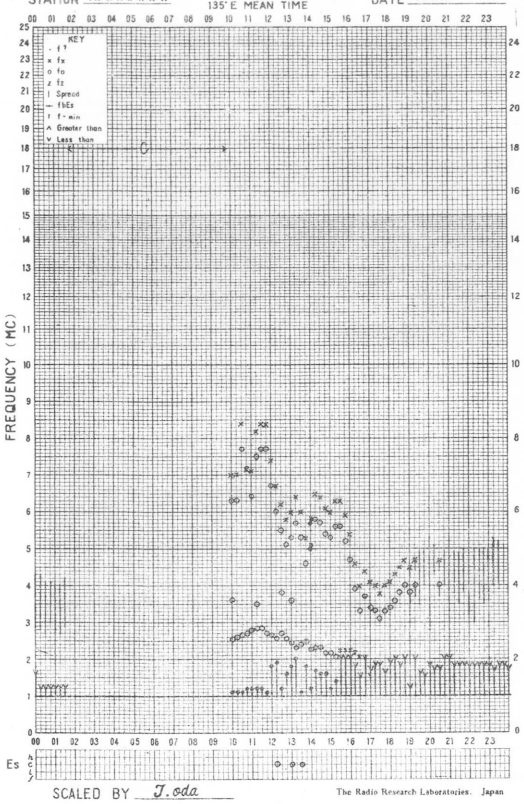

SCALED BY J. Oda

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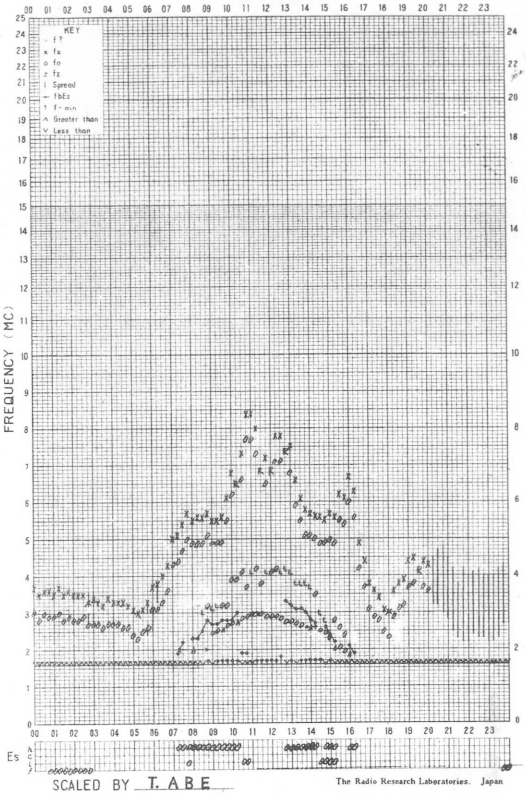

SCALED BY T. ABE

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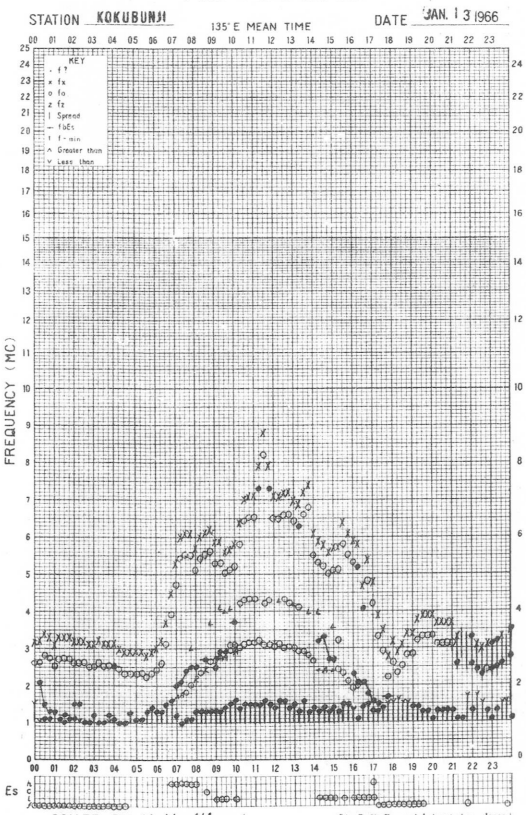

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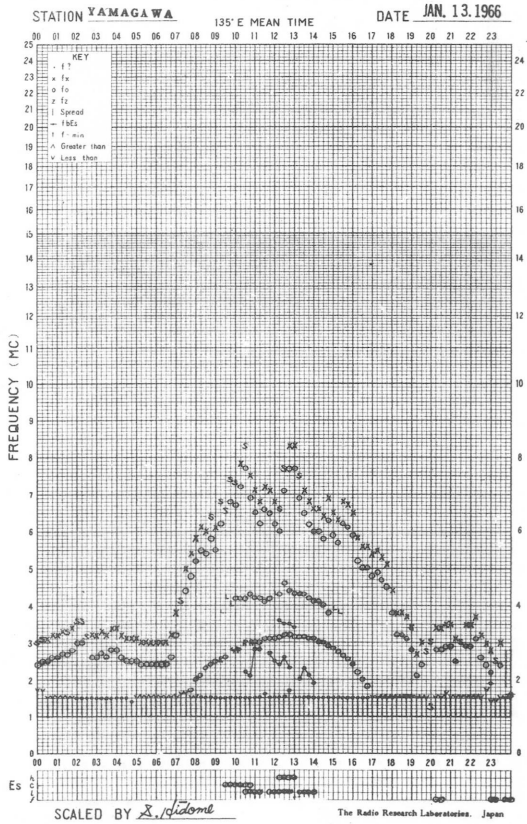

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The Radio Research Laboratories. Japan

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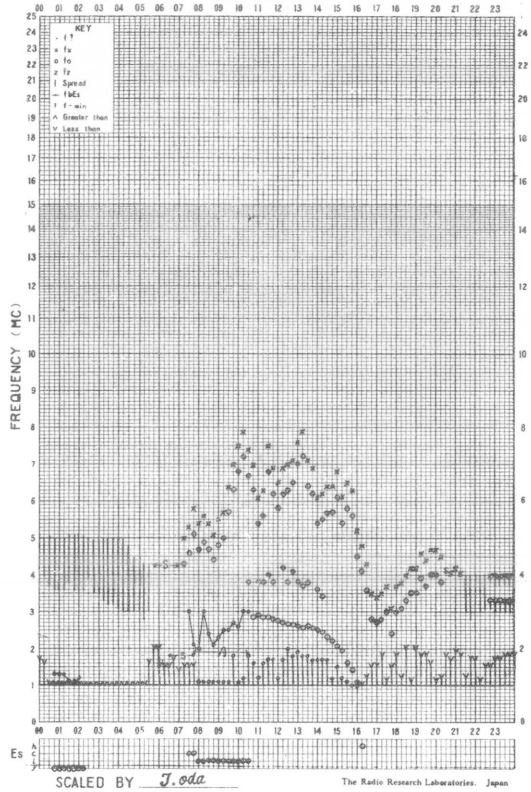

SCALED BY J. oda

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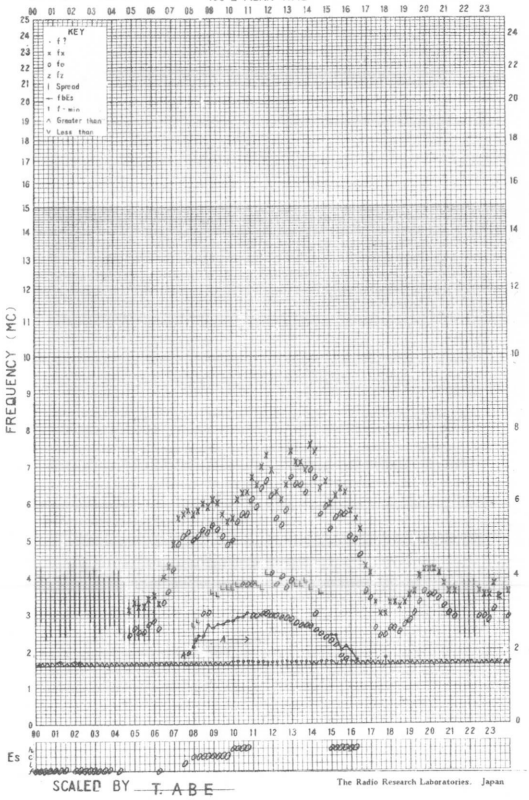

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The Radio Research Laboratories. Japan

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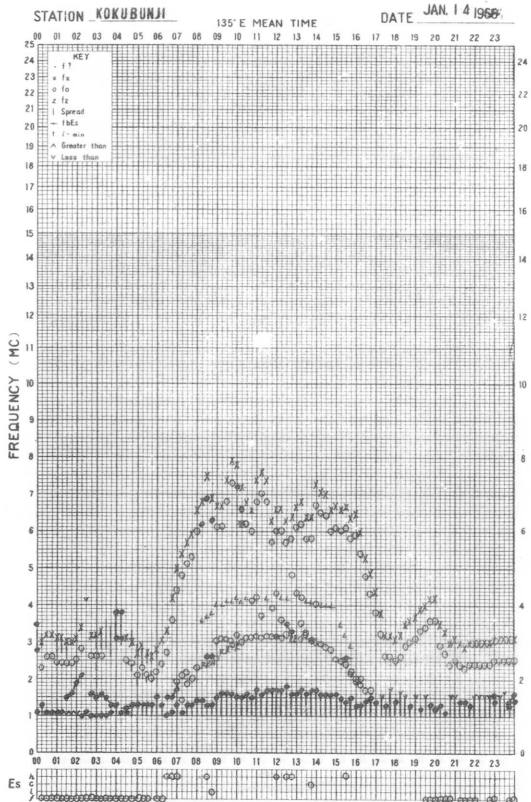

SCALED BY K. Yashikawa

The Radio Research Laboratories. Japan

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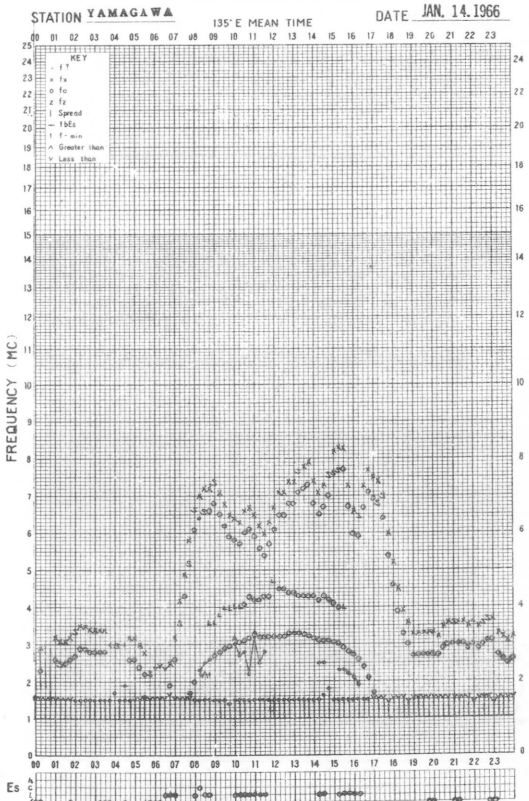

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The Radio Research Laboratories. Japan

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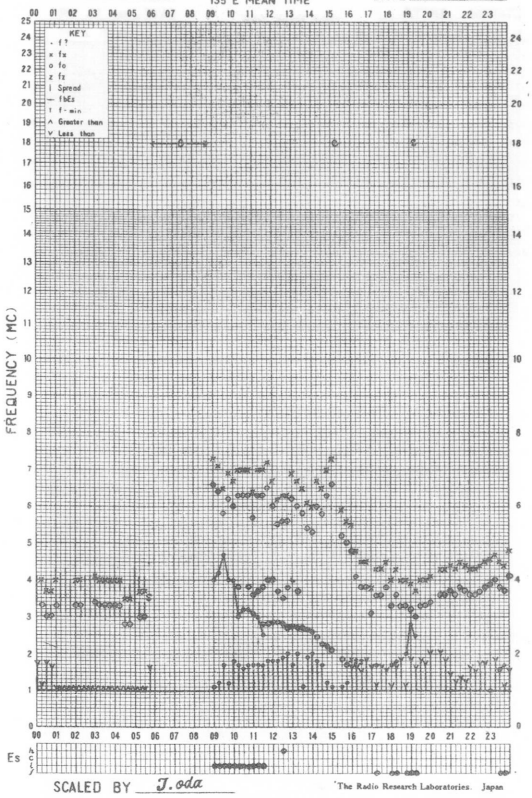

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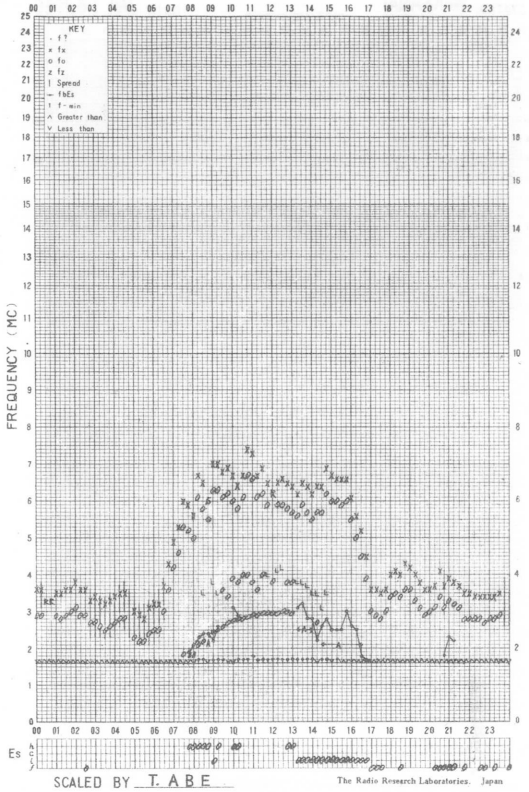

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The Radio Research Laboratories. Japan

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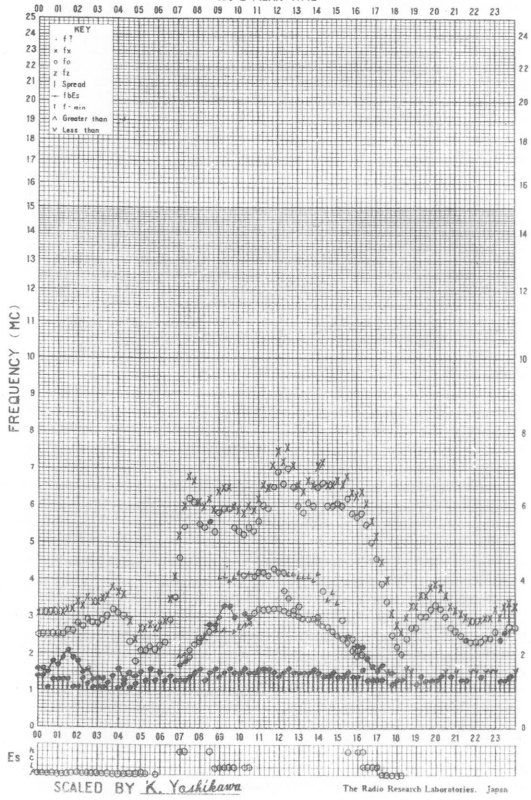

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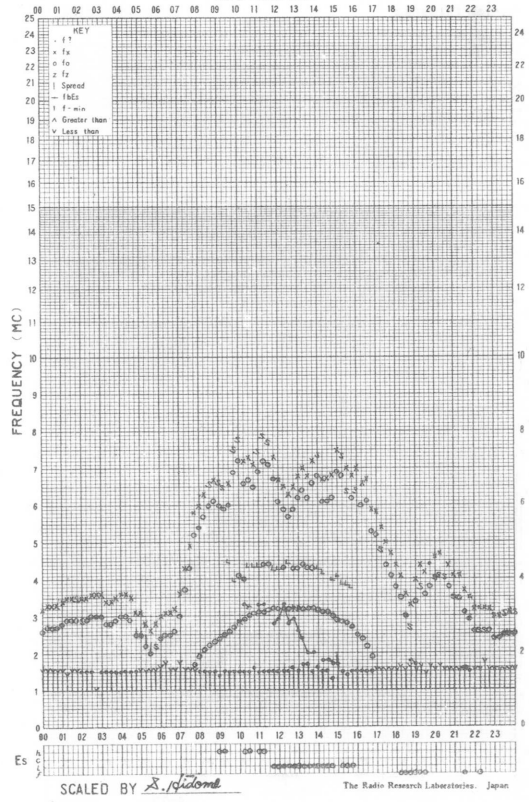

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The Radio Research Laboratories. Japan

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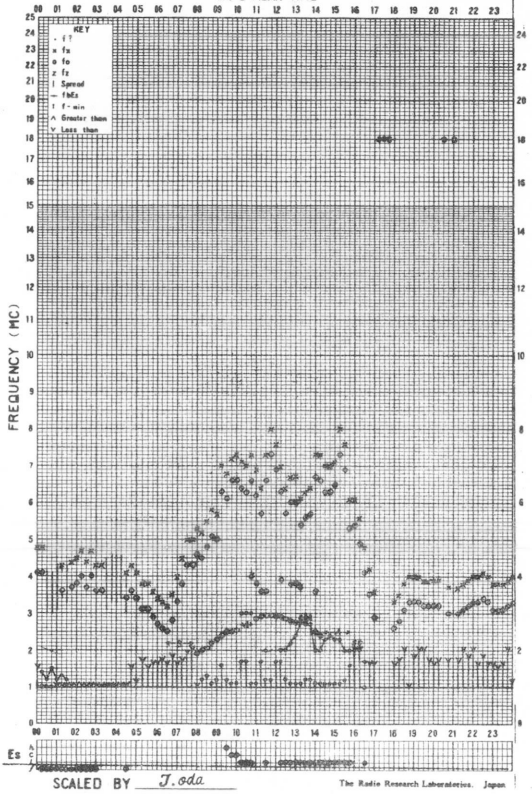

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The Radio Research Laboratories. Japan

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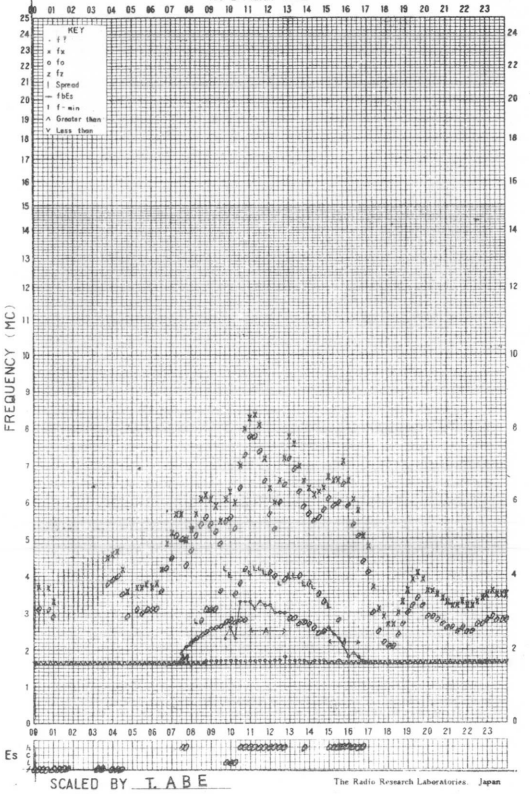

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The Radio Research Laboratories. Japan

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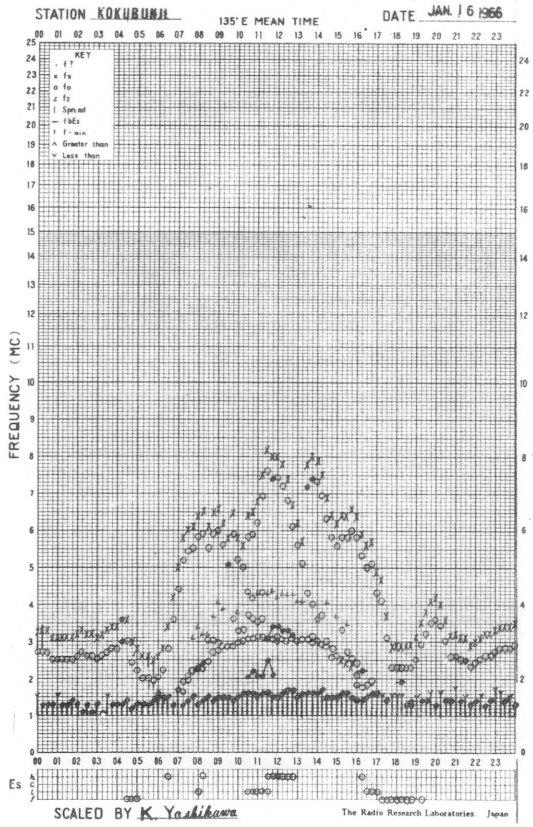

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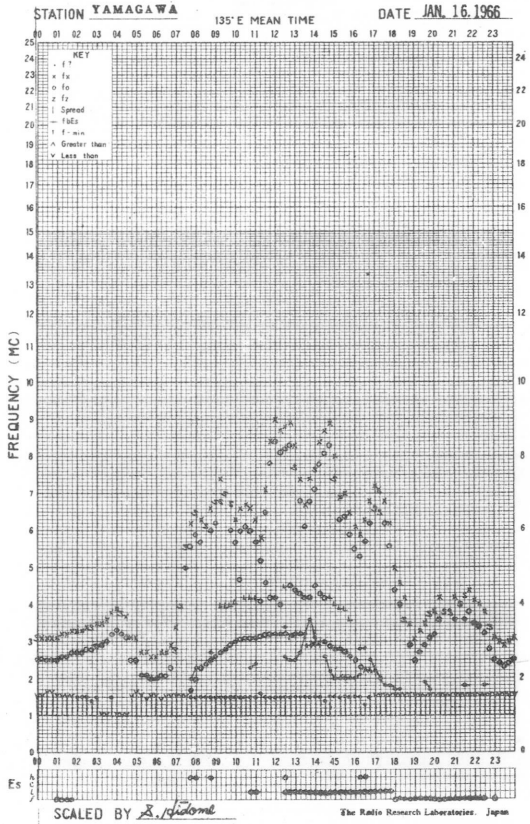

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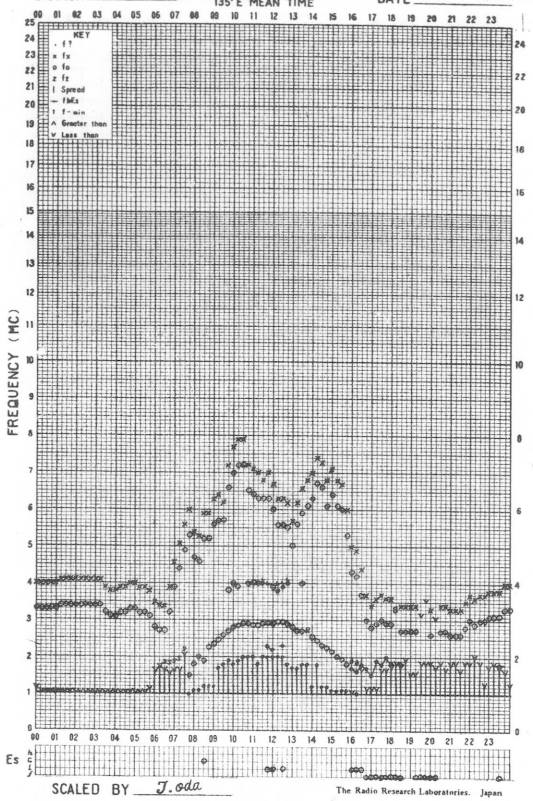

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The Radio Research Laboratories. Japan

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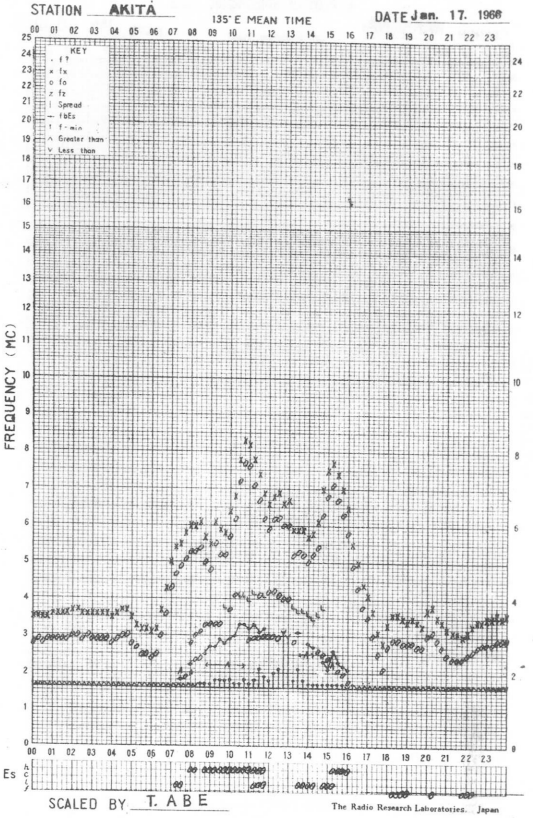

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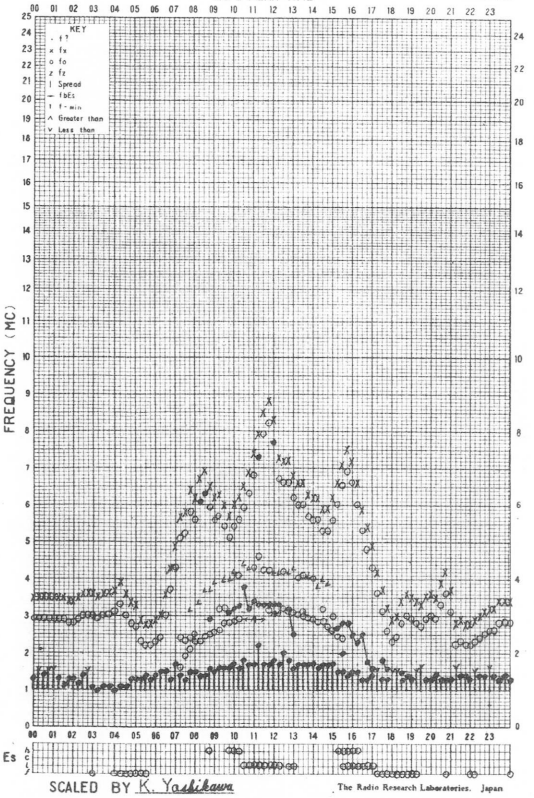

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The Radio Research Laboratories. Japan

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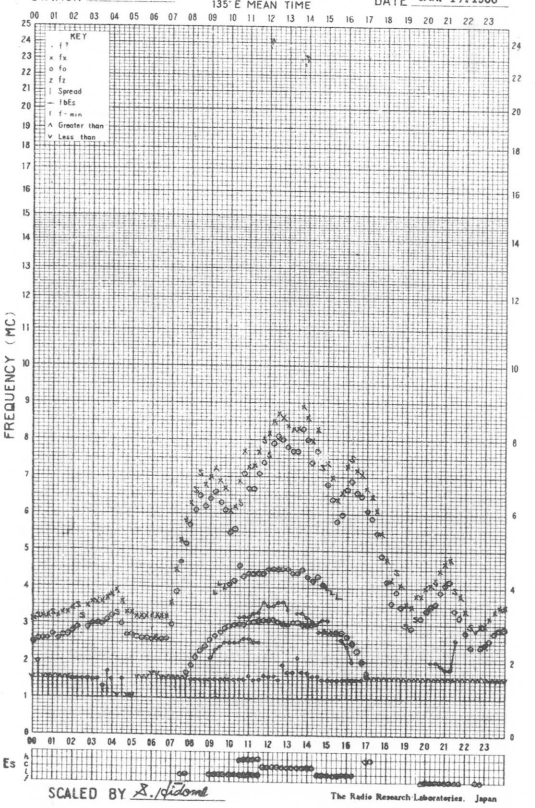
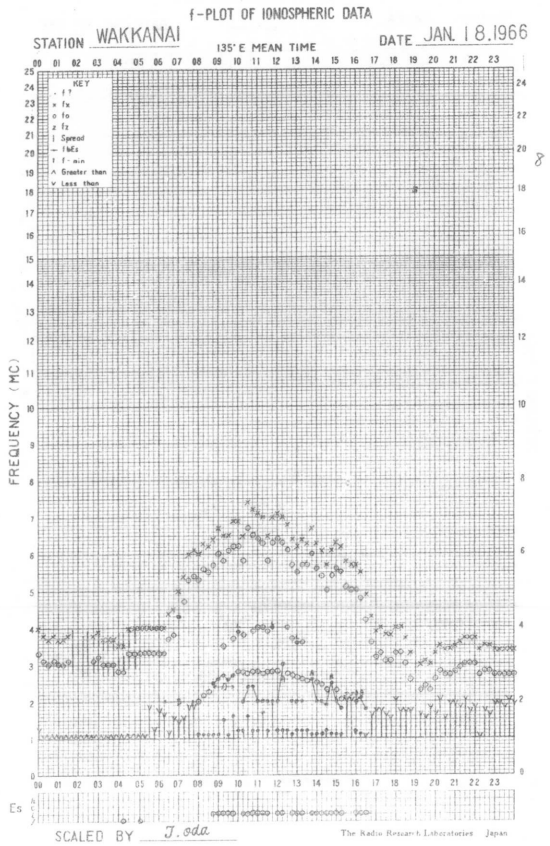


SCALED BY S. Ichimi

The Radio Research Laboratories. Japan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DATE JAN. 18.1966
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FREQUENCY (MC)
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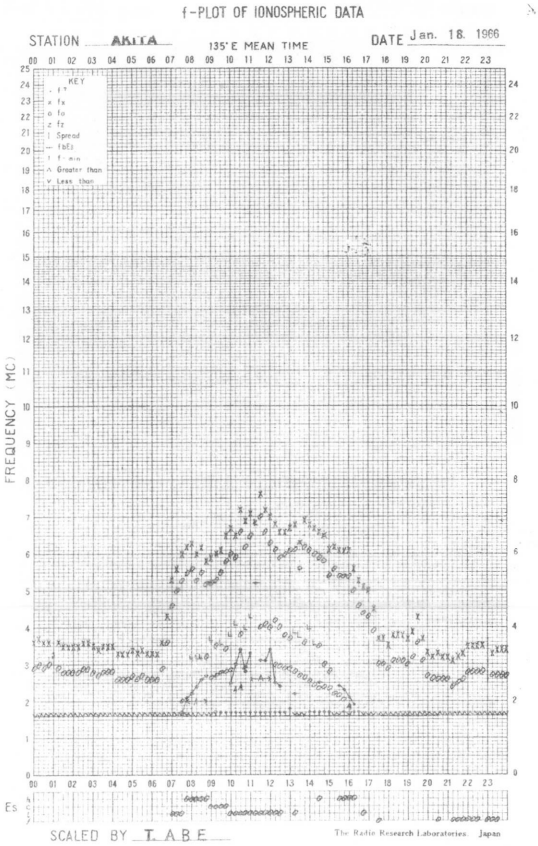
SCALED BY J. oda
The Radio Research Laboratories Japan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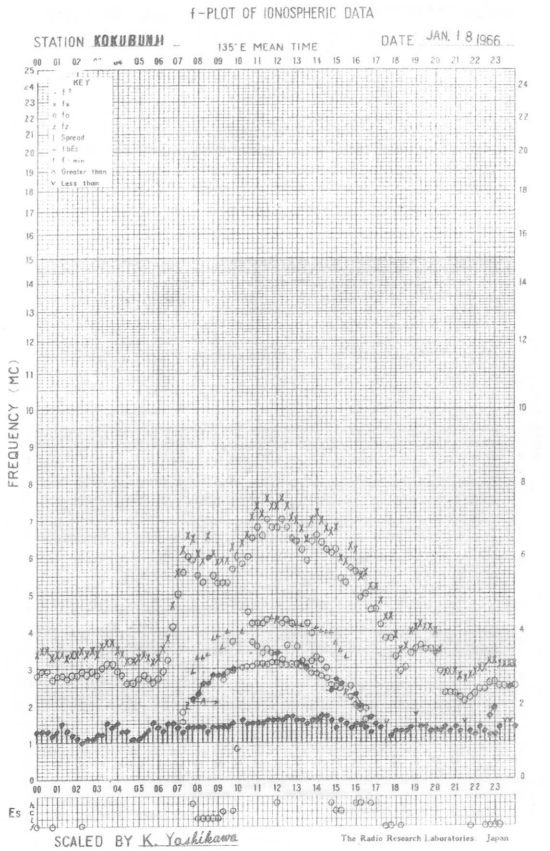
The Radio Research Laboratories Japan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135° E MEAN TIME
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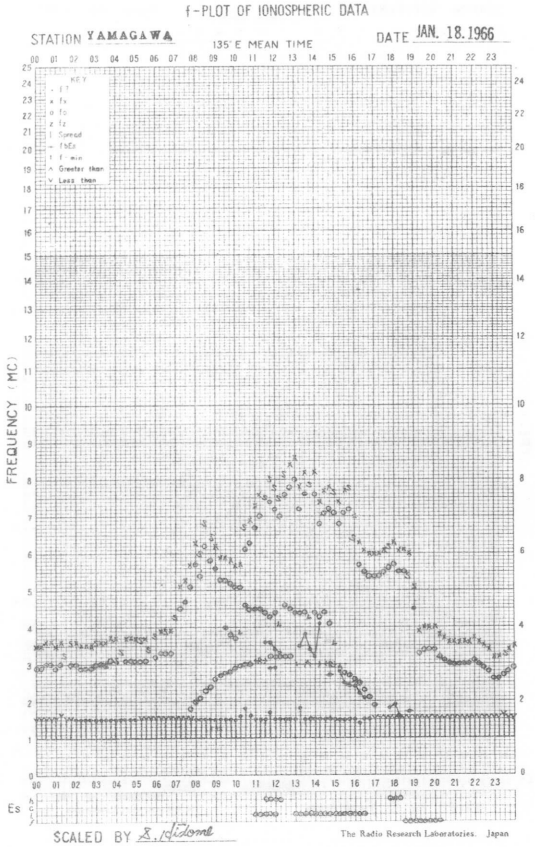
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The Radio Research Laboratories Japan

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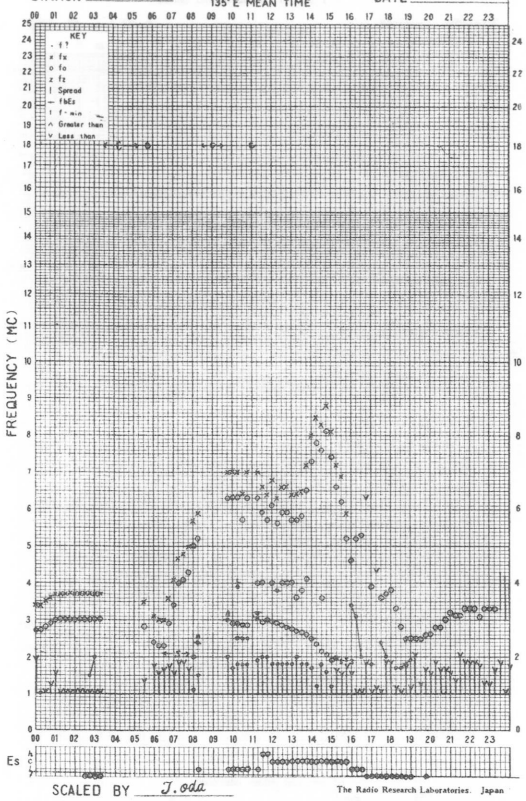

SCALED BY J. Oda The Radio Research Laboratories. Japan

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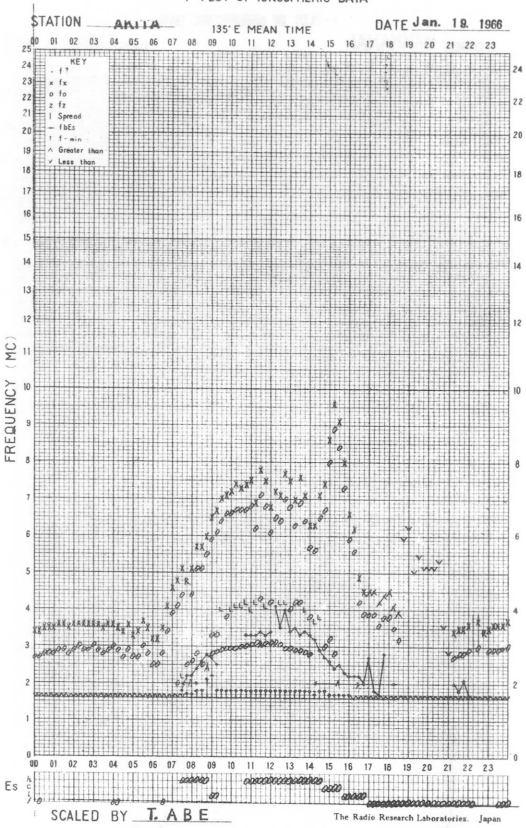

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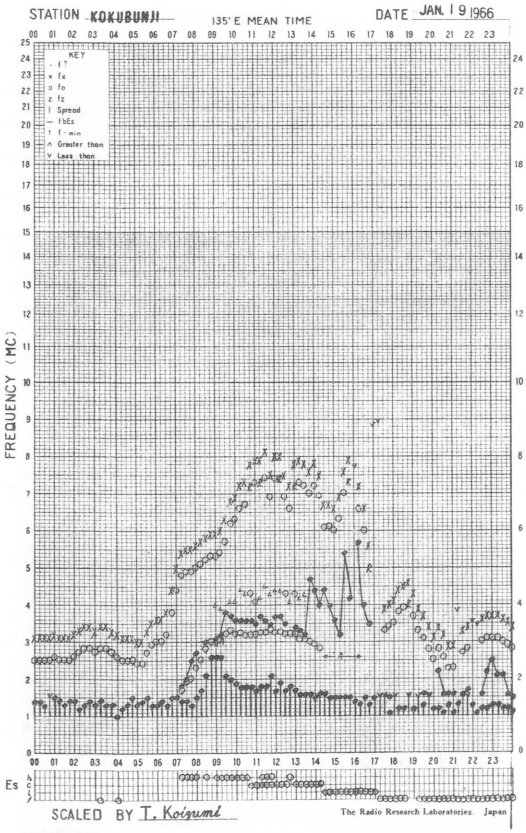

SCALED BY T. Koizumi The Radio Research Laboratories. Japan

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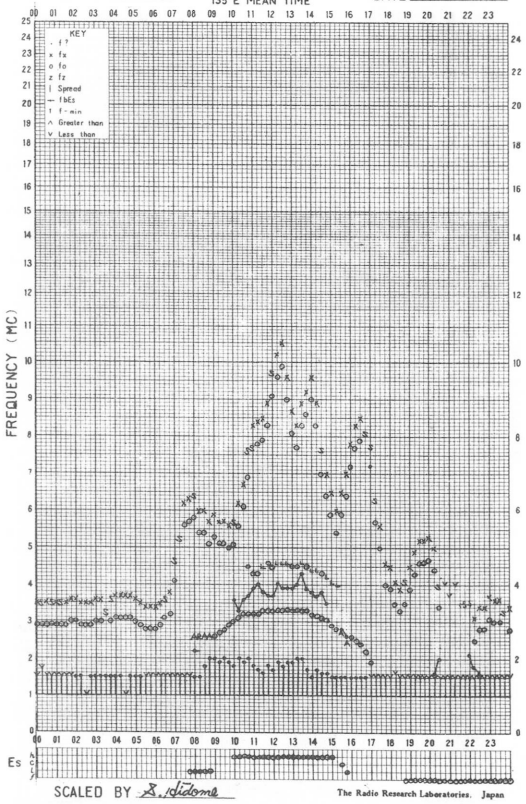

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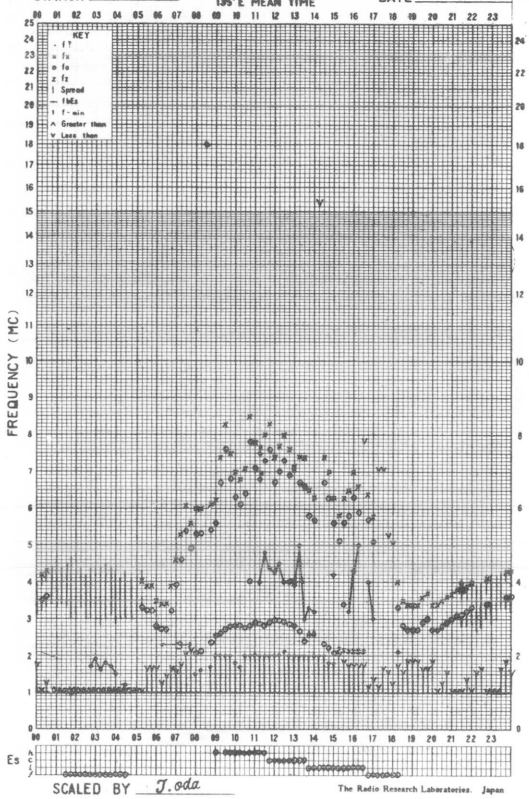

SCALED BY J. oda The Radio Research Laboratories. Japan

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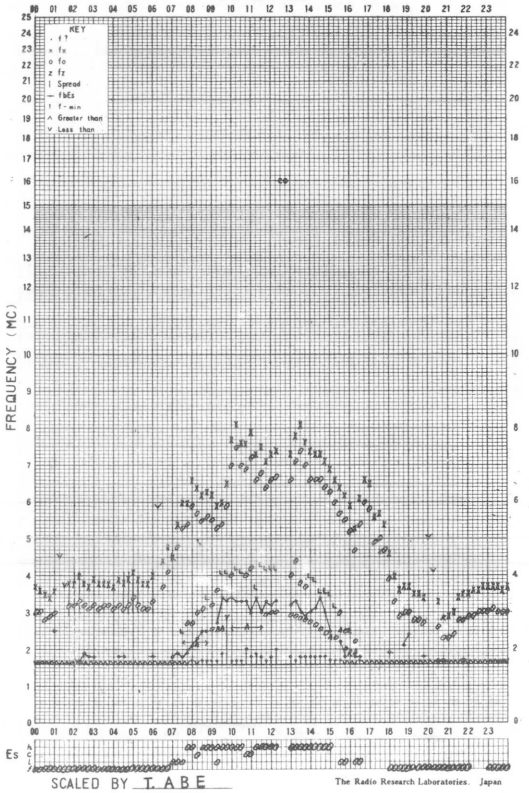

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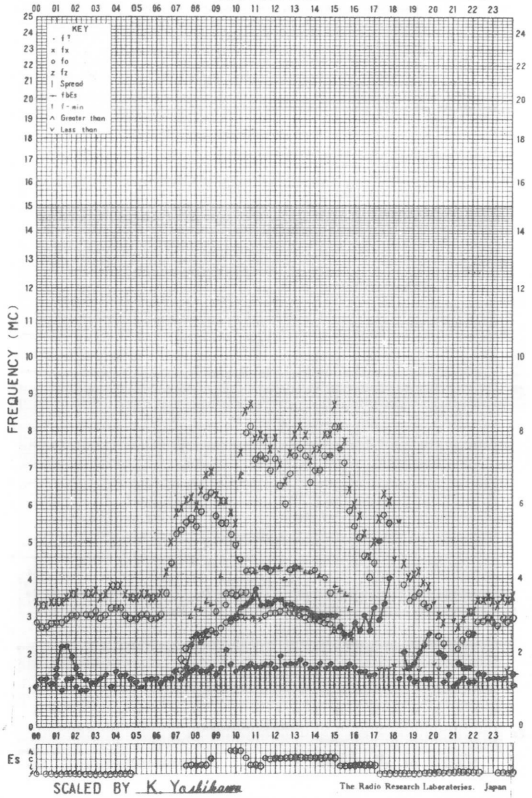

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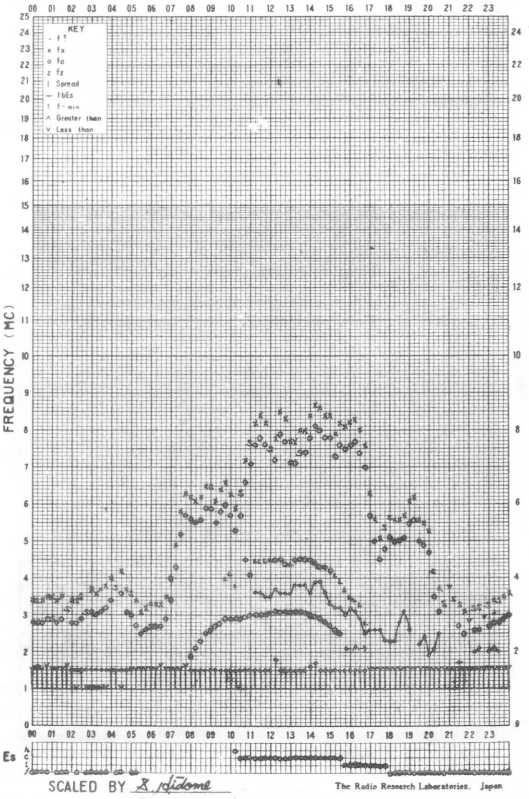

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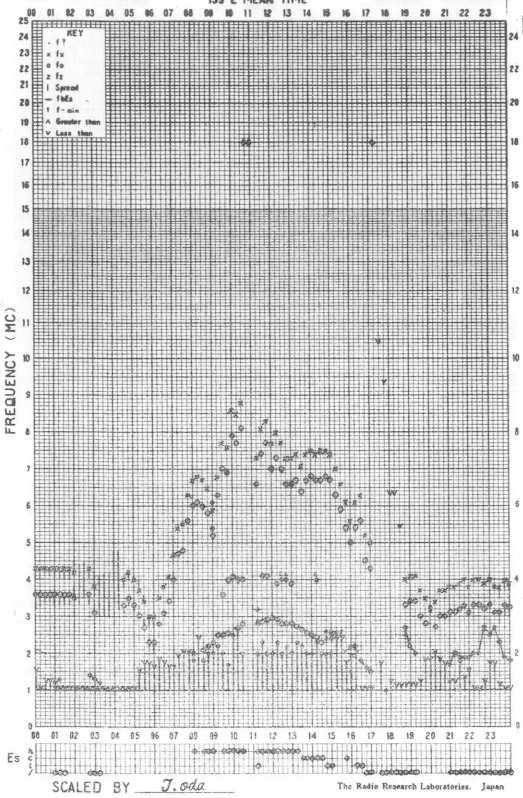

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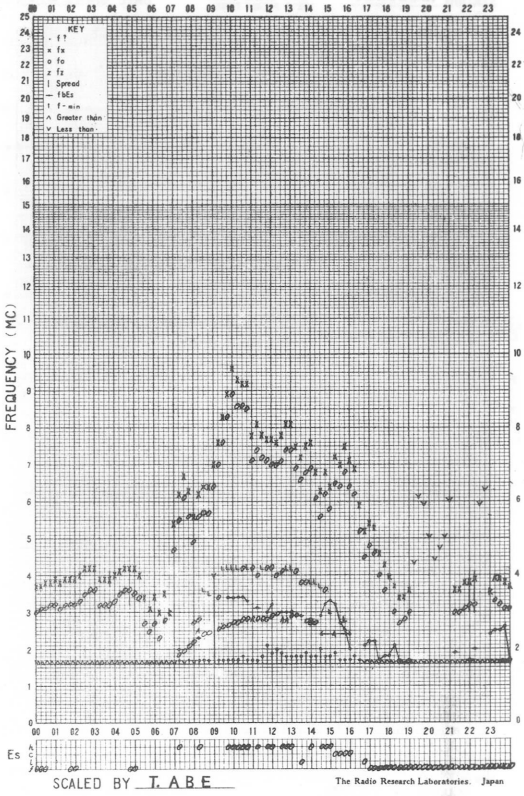

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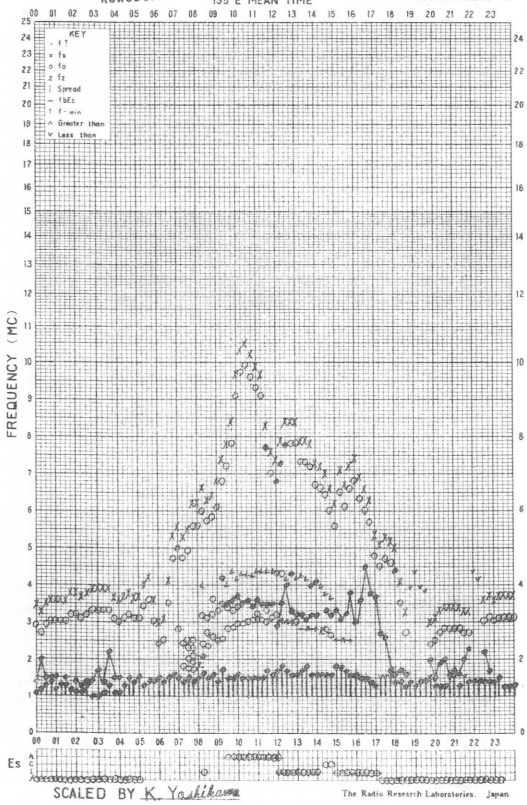
STATION KOKUBUNJI 135°E MEAN TIME DATE JAN. 21. 1966

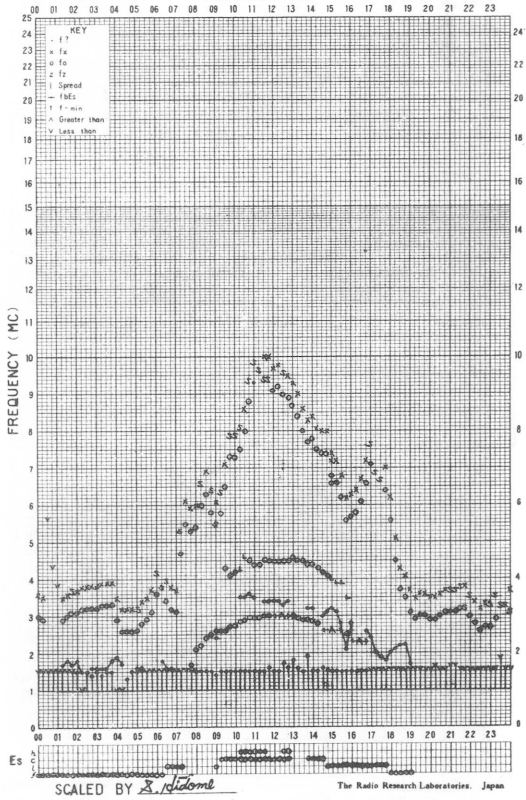


SCALED BY K. Yokikawa

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE JAN. 21. 1966



SCALED BY S. Sitomi

The Radio Research Laboratories. Japan

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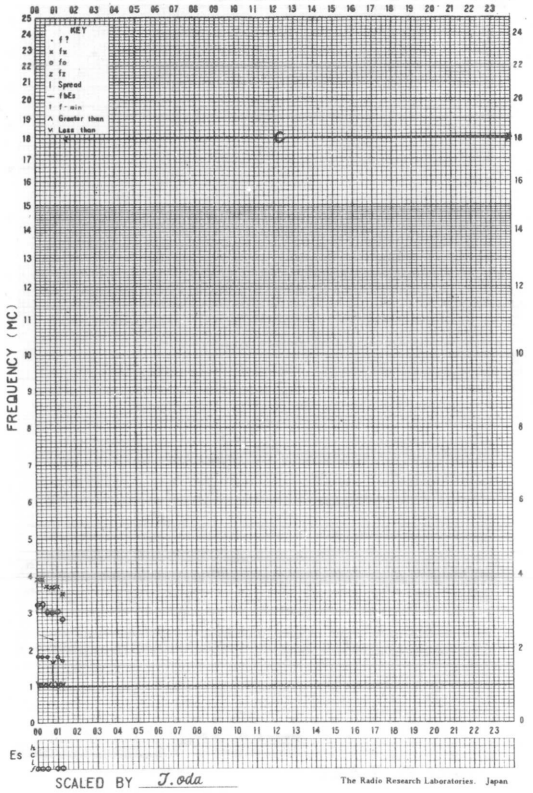

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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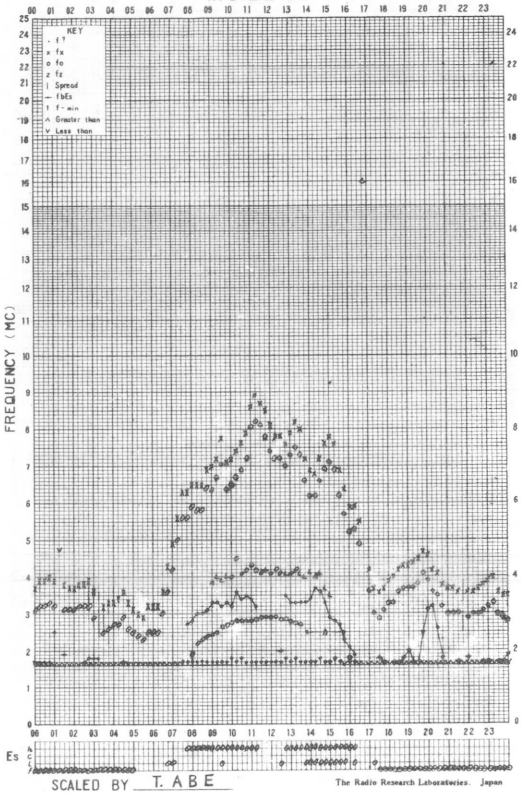

SCALED BY T. ABE

The Radio Research Laboratories. Japan

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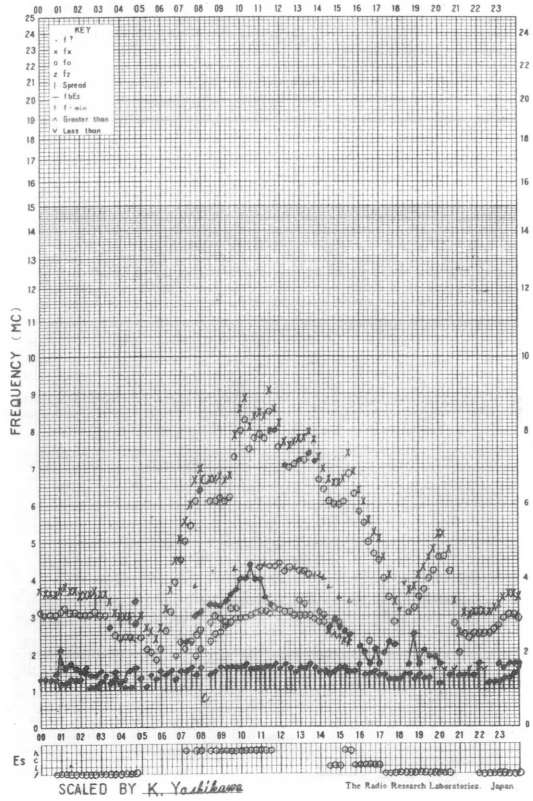

SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

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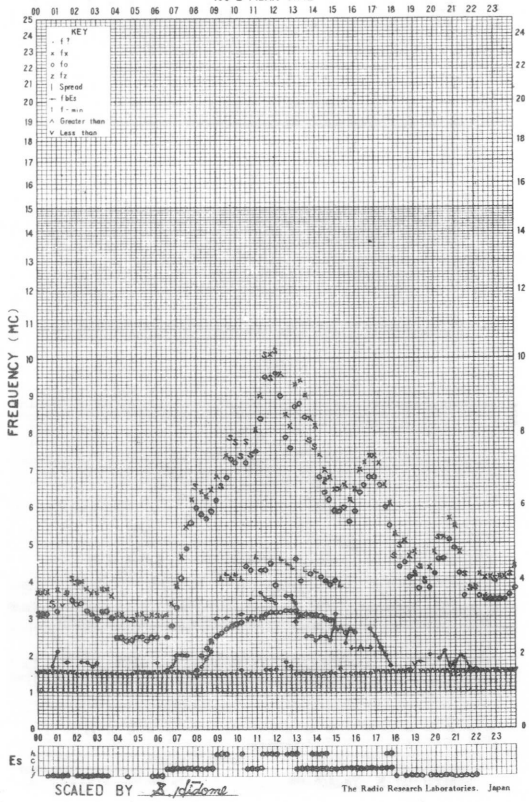
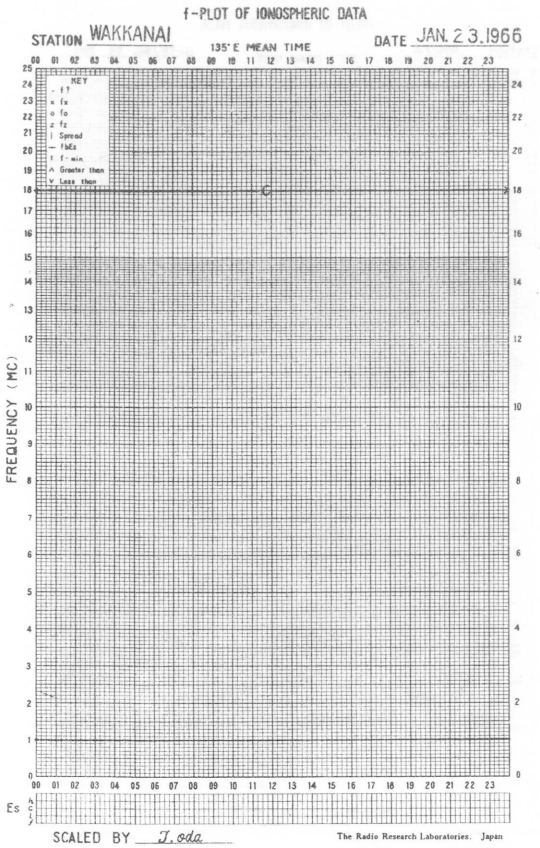


SCALED BY K. Ichidome

The Radio Research Laboratories. Japan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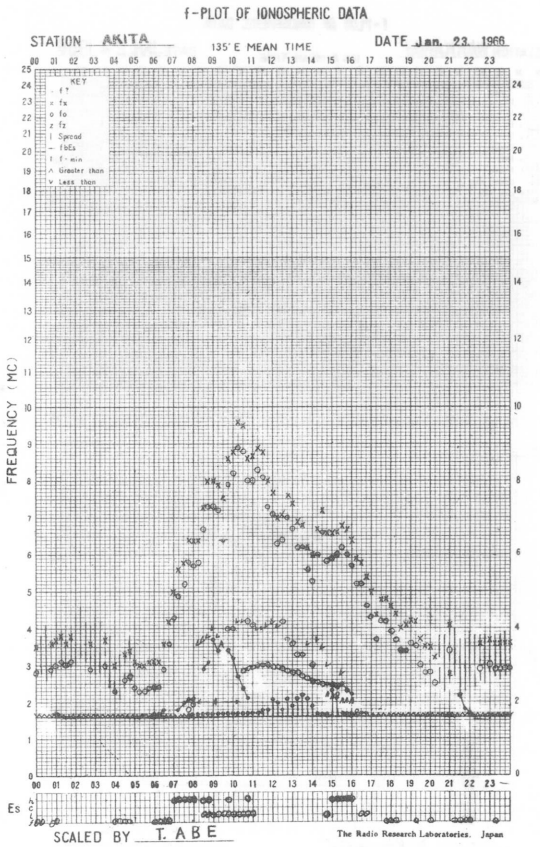
SCALED BY J. Oda
The Radio Research Laboratories. Japan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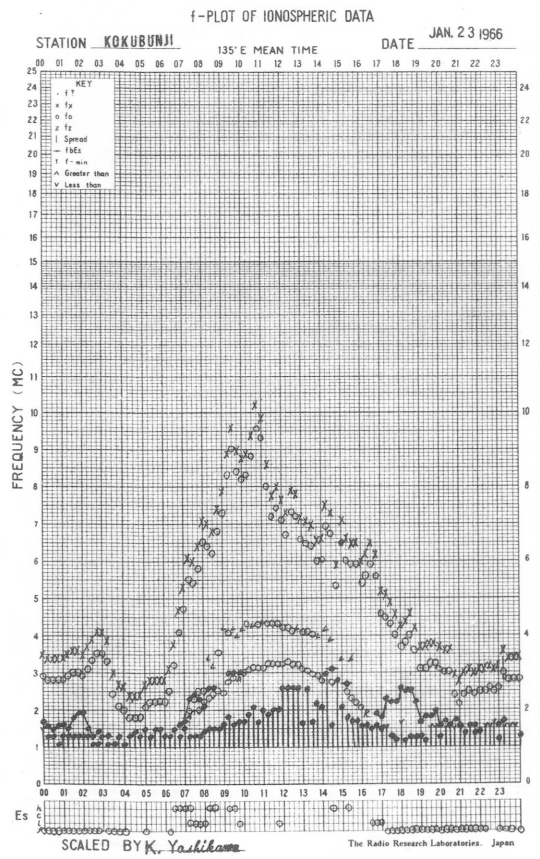
SCALED BY T. ABE
The Radio Research Laboratories. Japan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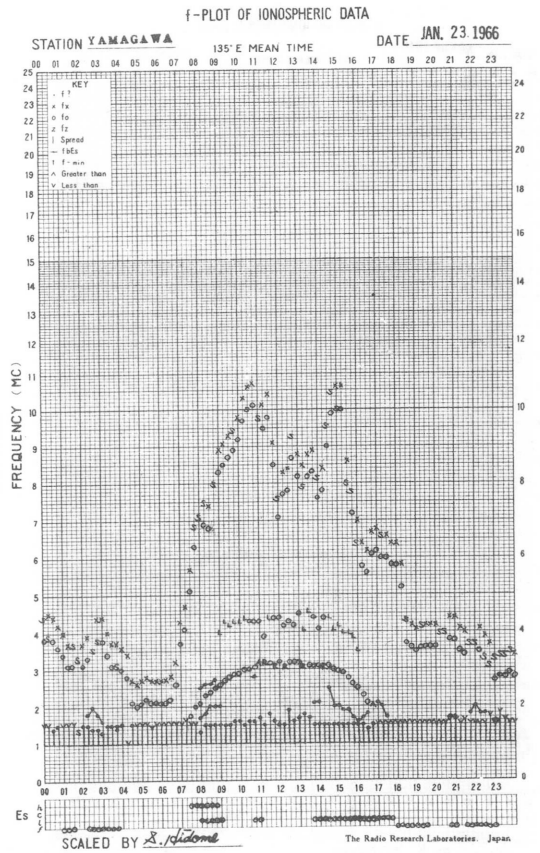
SCALED BY K. Yoshikawa
The Radio Research Laboratories. Japan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The Radio Research Laboratories. Japan

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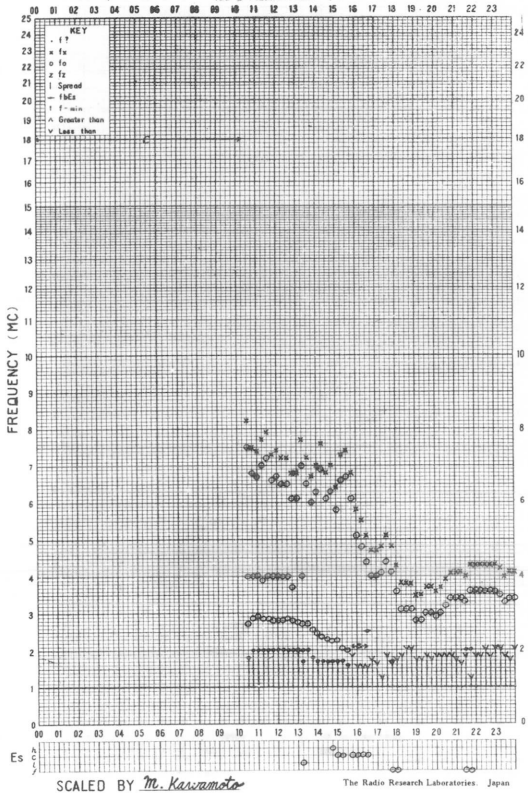

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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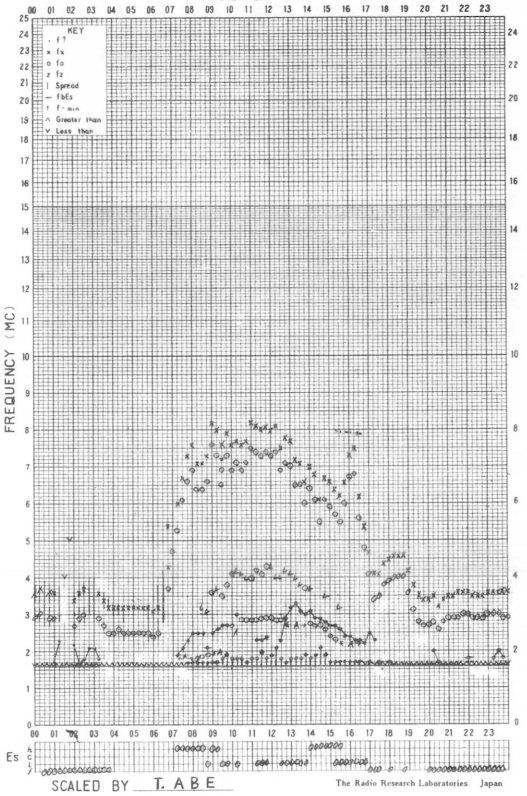

SCALED BY T. ABE

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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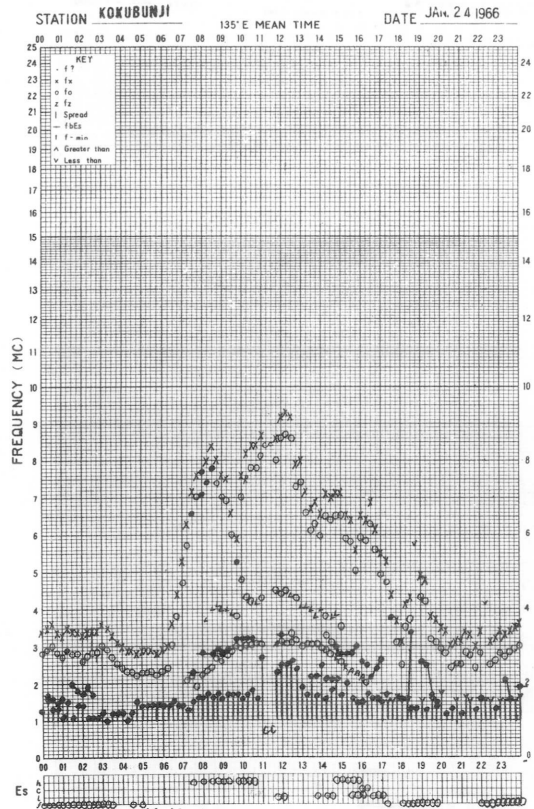

SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

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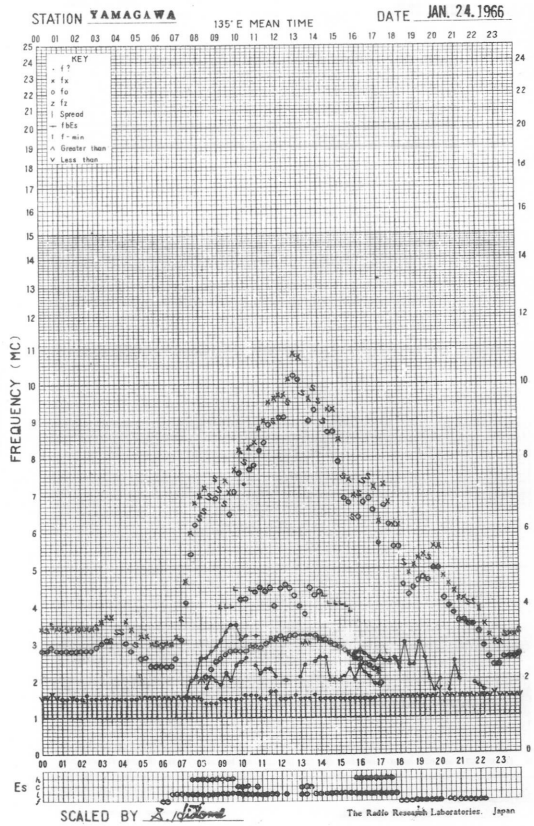

SCALED BY A. Nishimura

The Radio Research Laboratories. Japan

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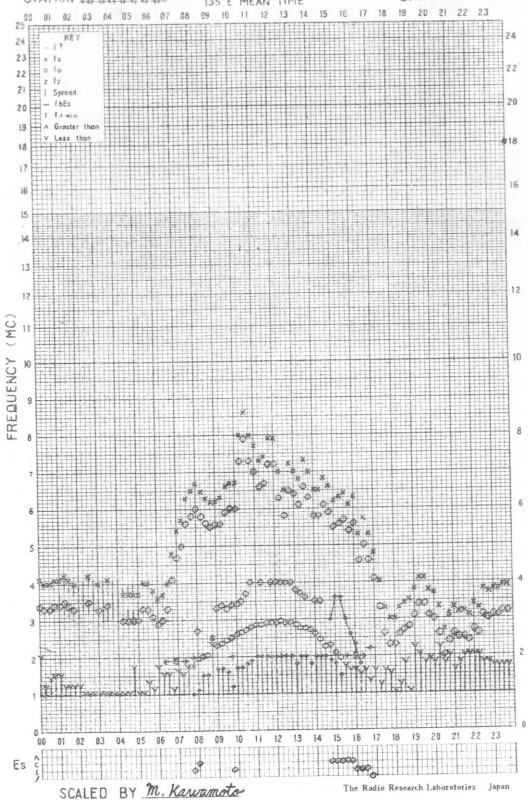

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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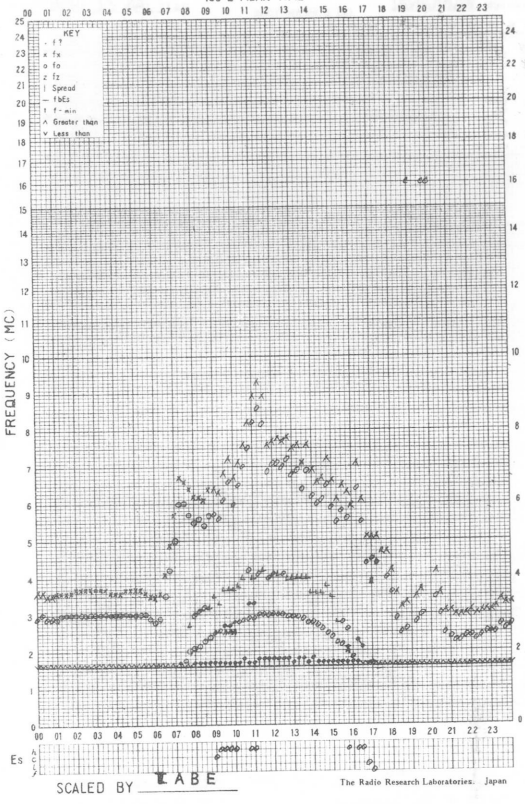

SCALED BY T. ABE

The Radio Research Laboratories. Japan

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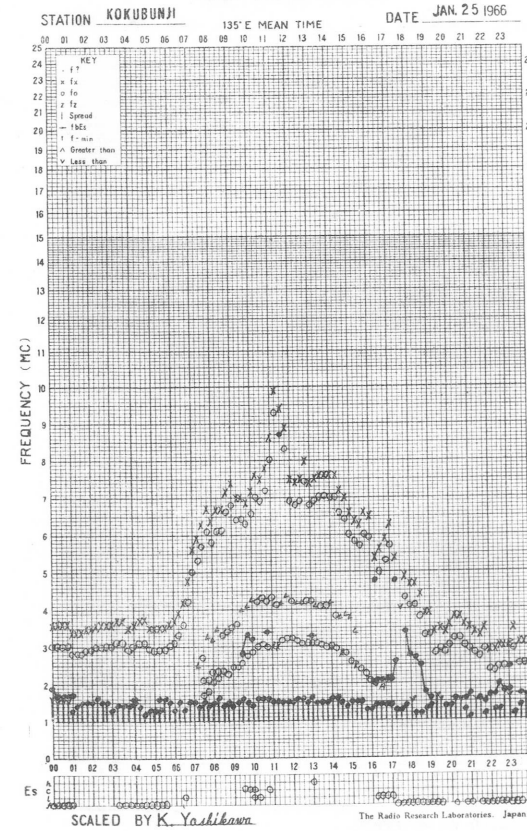

SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

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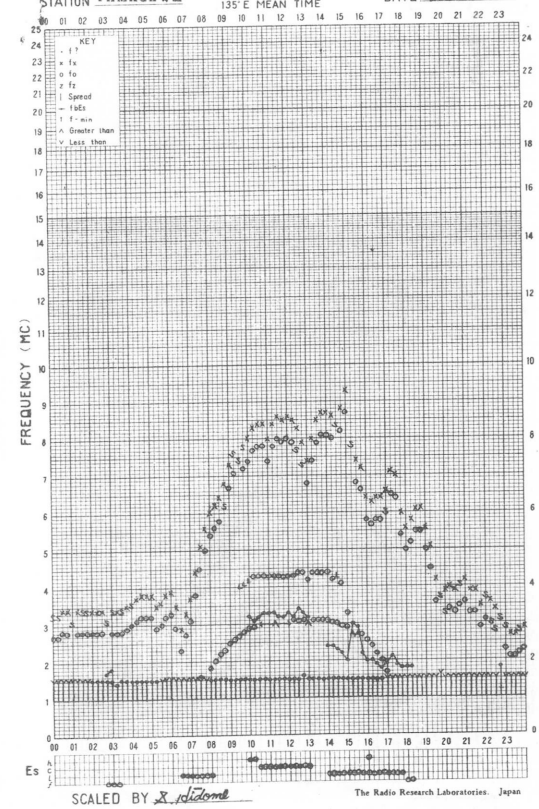

SCALED BY S. Ishitomi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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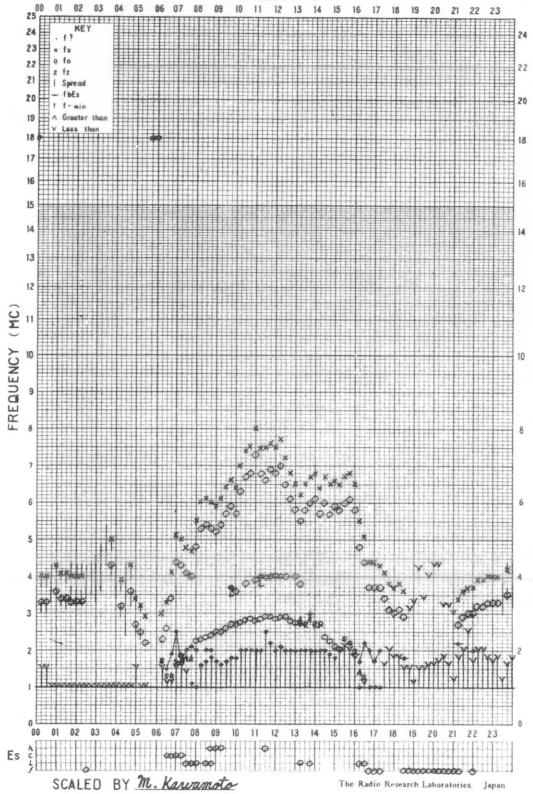

SCALED BY M. Kawamoto

The Radio Research Laboratories Japan

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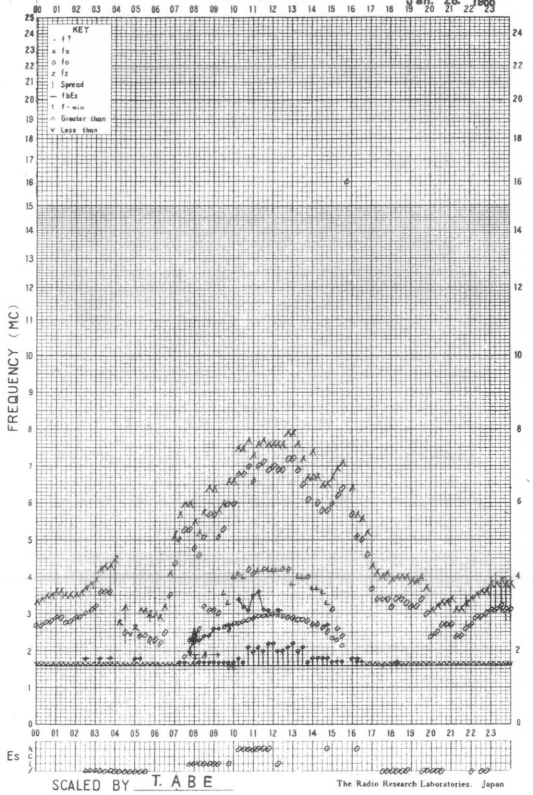

SCALED BY T. ABE

The Radio Research Laboratories Japan

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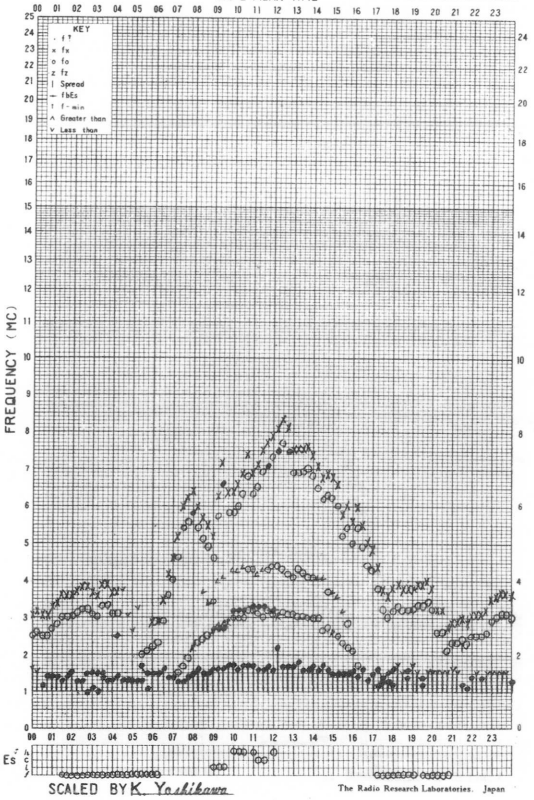

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The Radio Research Laboratories Japan

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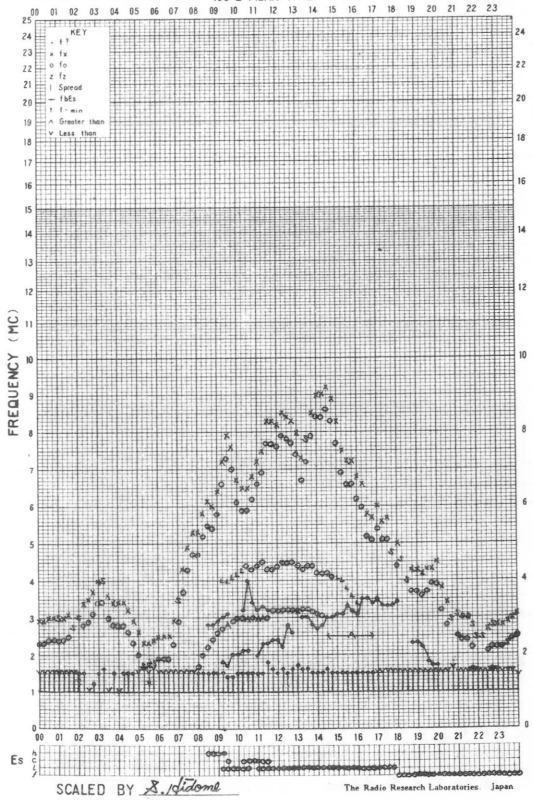

SCALED BY S. Ichidome

The Radio Research Laboratories Japan

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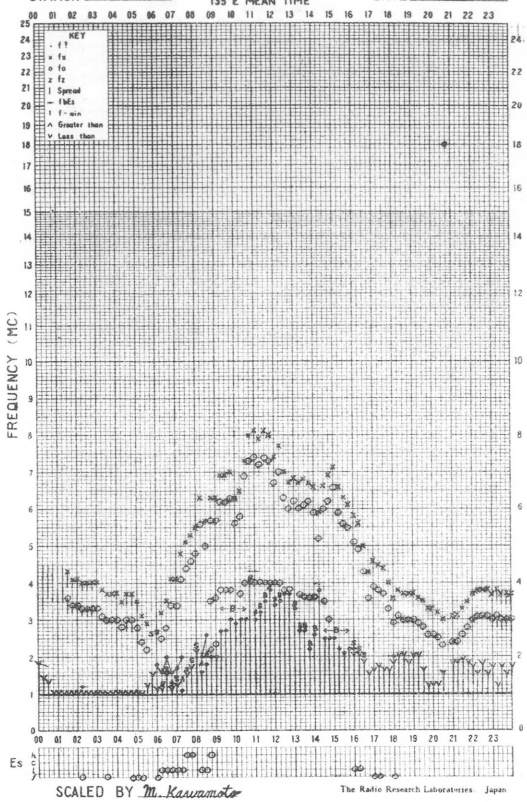

SCALED BY M. Kawamoto The Radio Research Laboratories Japan

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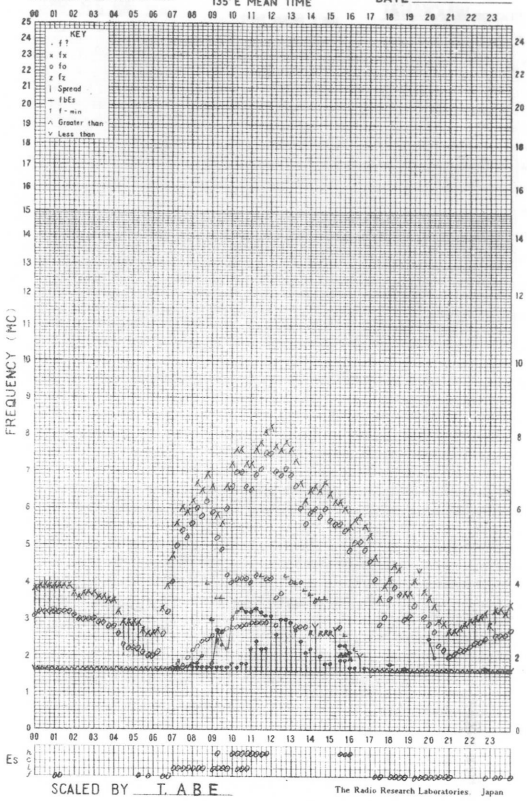

SCALED BY T. ABE The Radio Research Laboratories Japan

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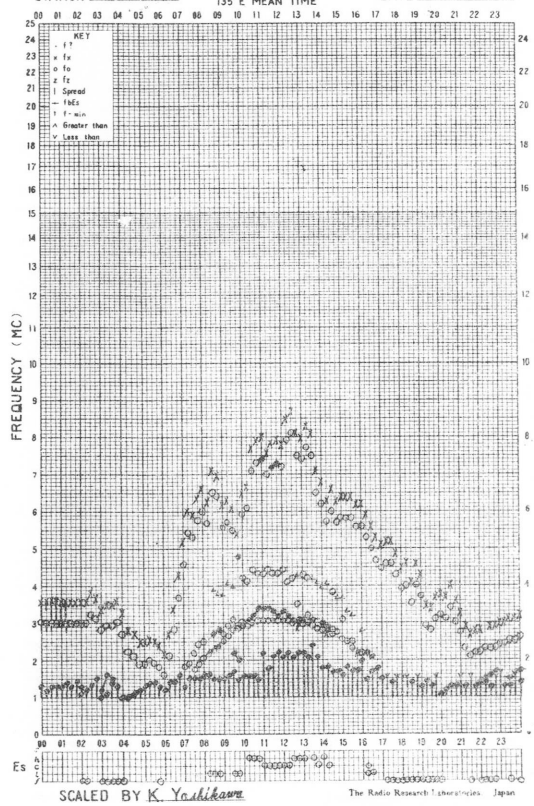

SCALED BY K. Yoshikawa The Radio Research Laboratories Japan

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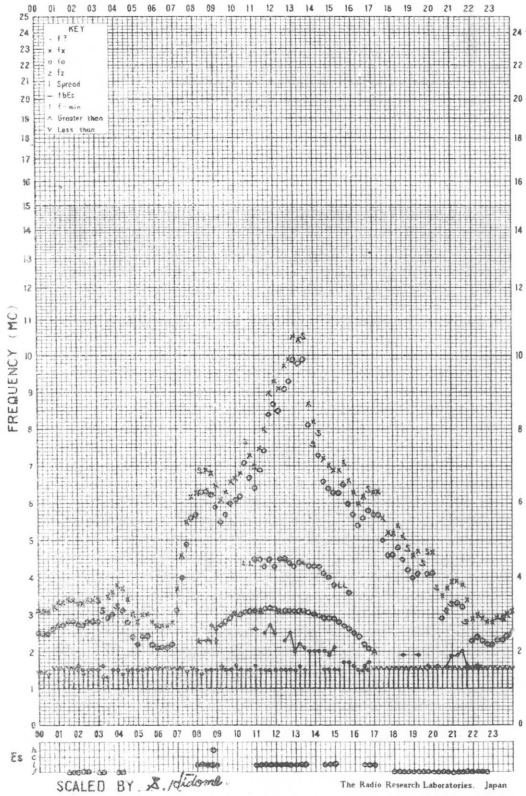
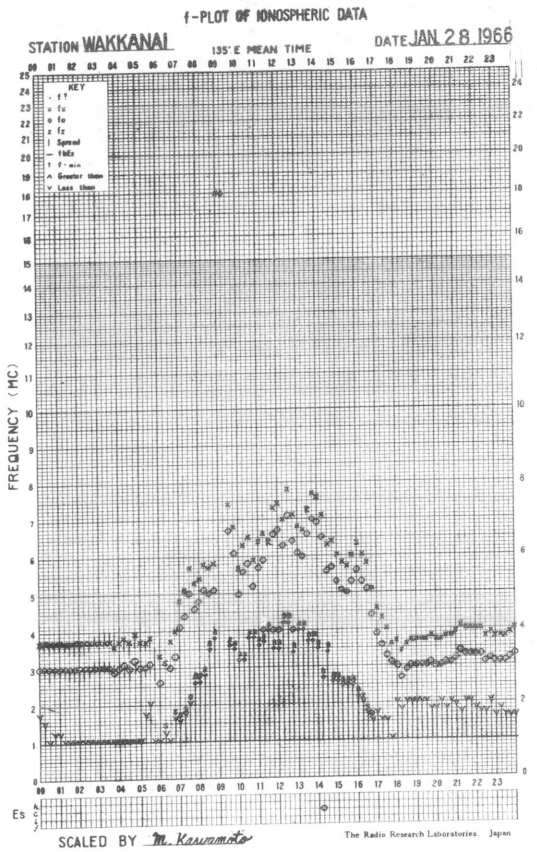


SCALED BY S. Ichitomi The Radio Research Laboratories Japan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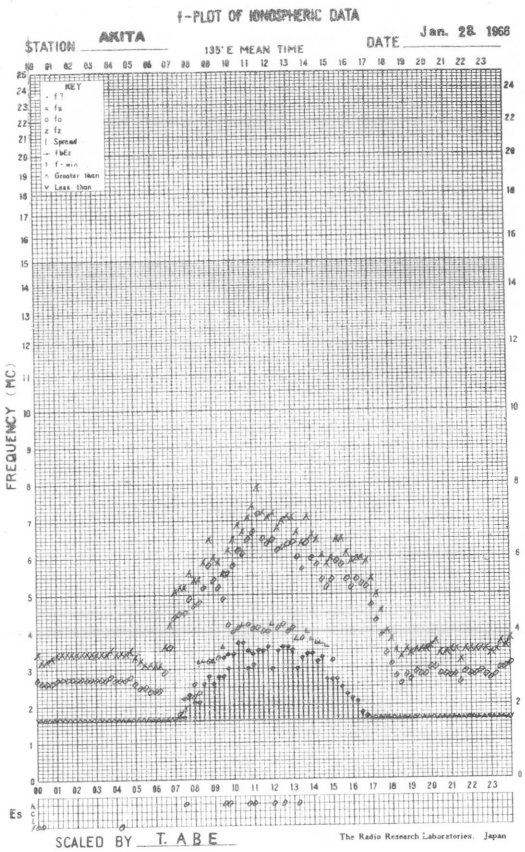
SCALED BY M. Kawamoto
The Radio Research Laboratories. Japan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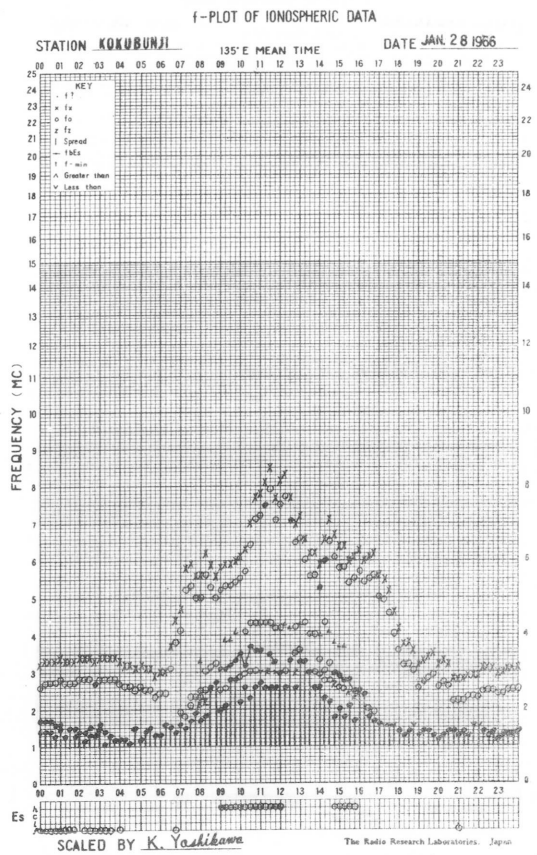
The Radio Research Laboratories. Japan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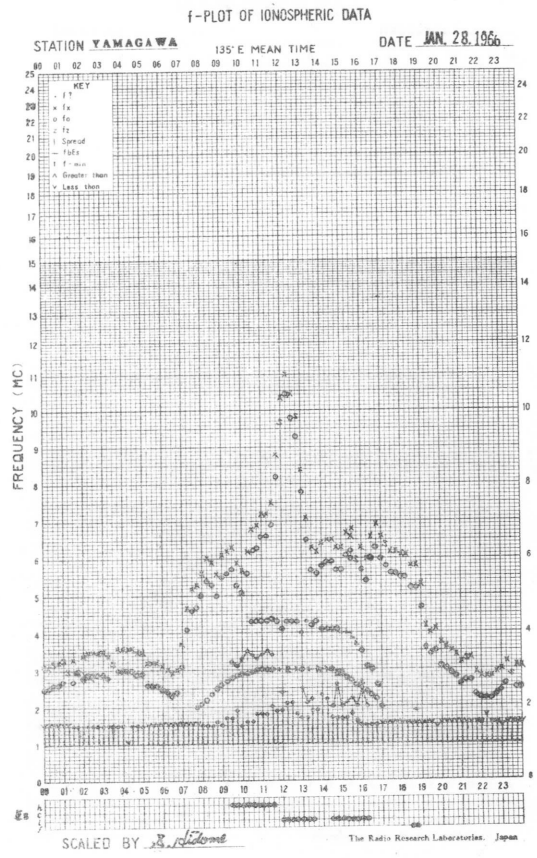
SCALED BY K. Yoshikawa
The Radio Research Laboratories. Japan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The Radio Research Laboratories. Japan

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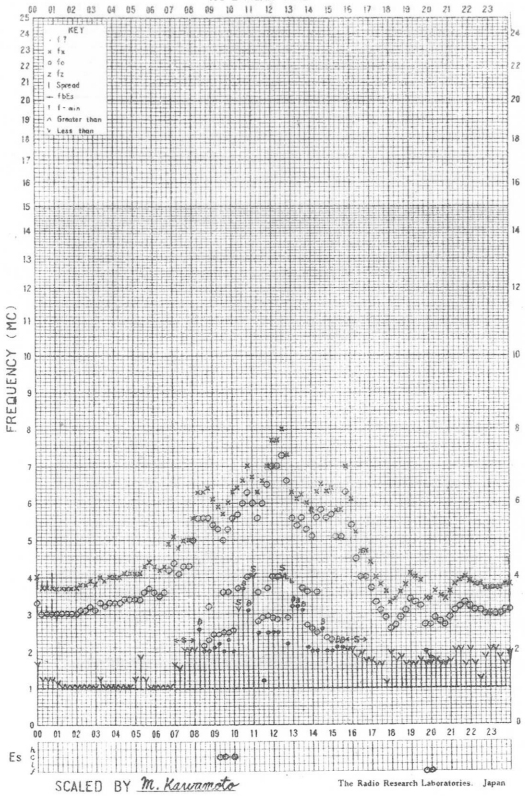

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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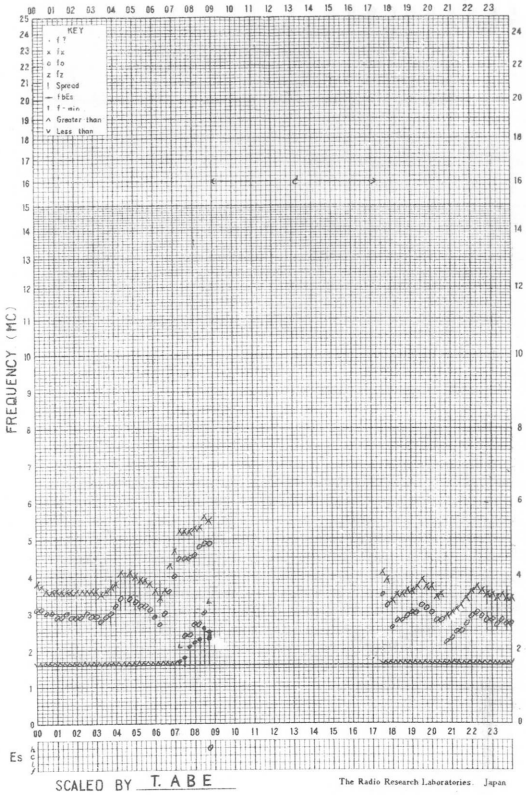

SCALED BY T. ABE The Radio Research Laboratories. Japan

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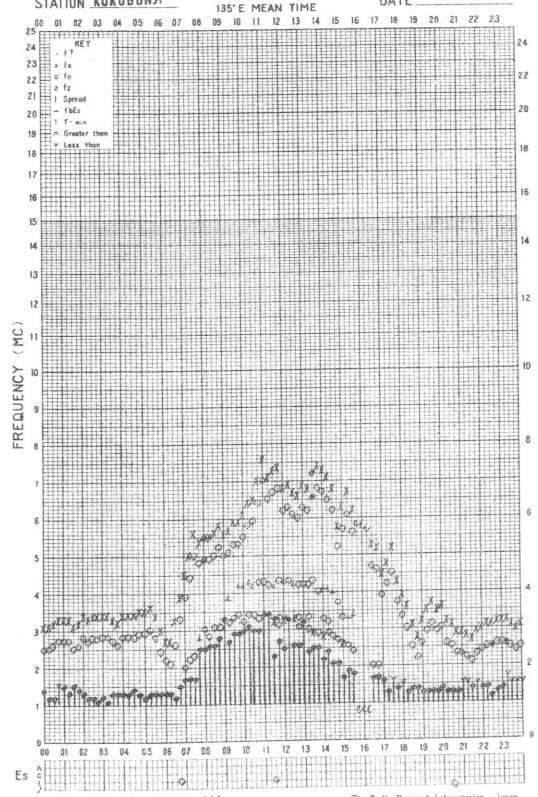

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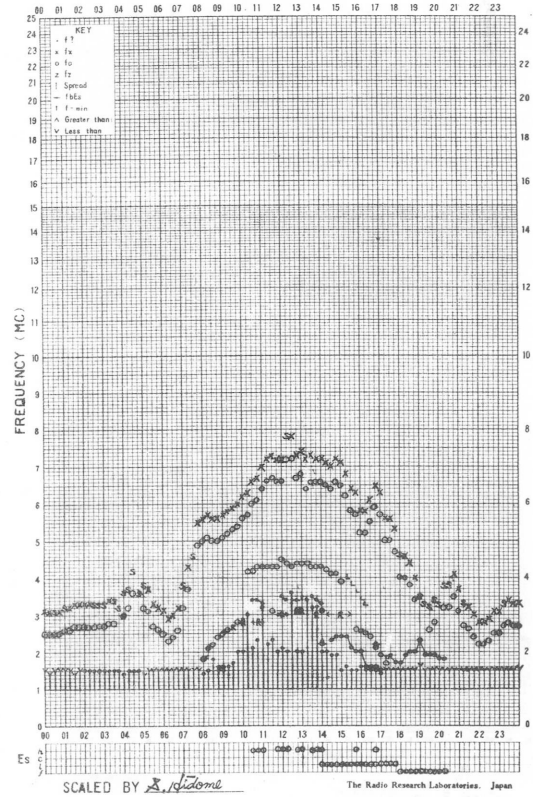

SCALED BY S. Ichidome The Radio Research Laboratories. Japan

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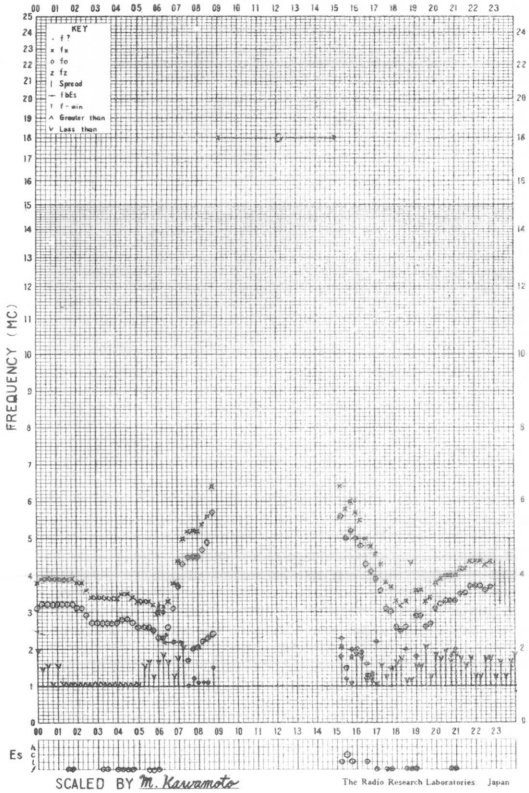

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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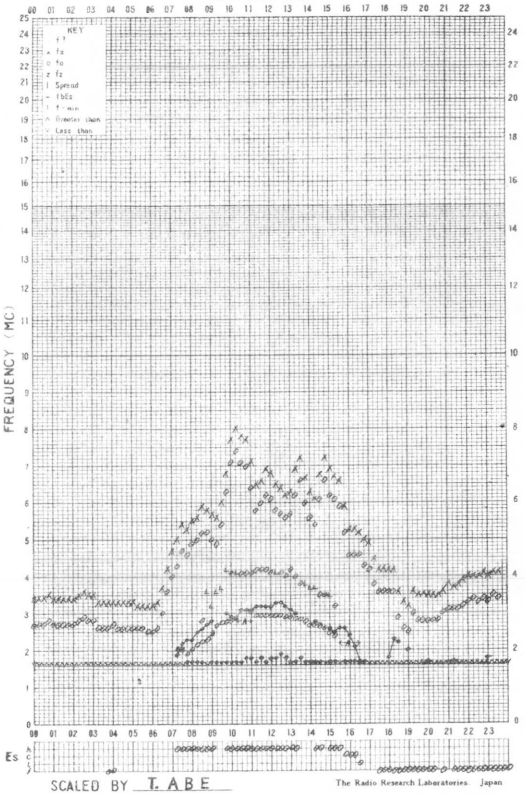

SCALED BY T. ABE

The Radio Research Laboratories. Japan

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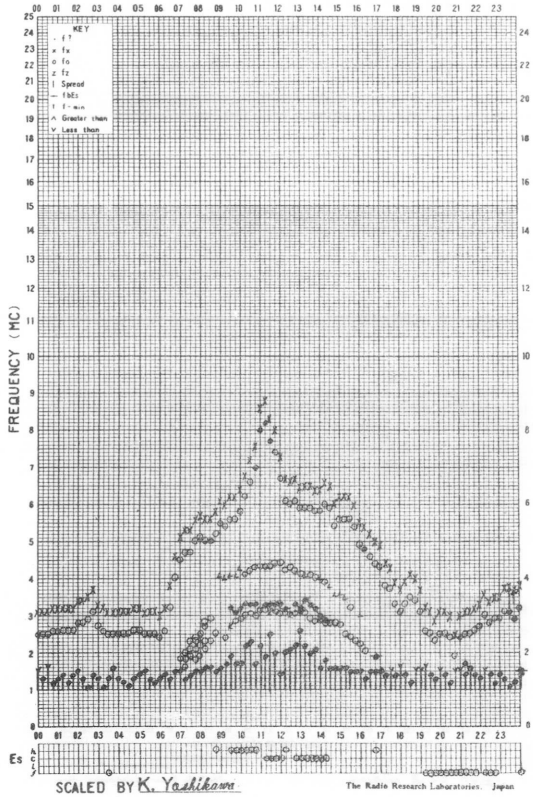

SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

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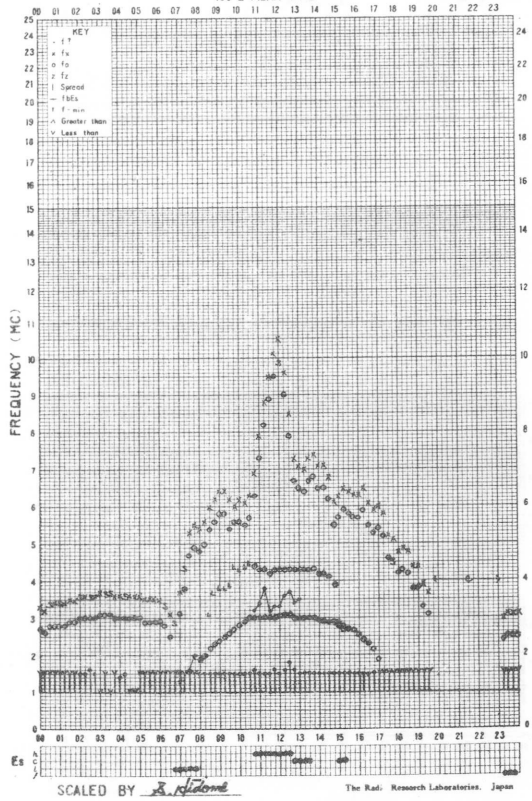

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The Radio Research Laboratories. Japan

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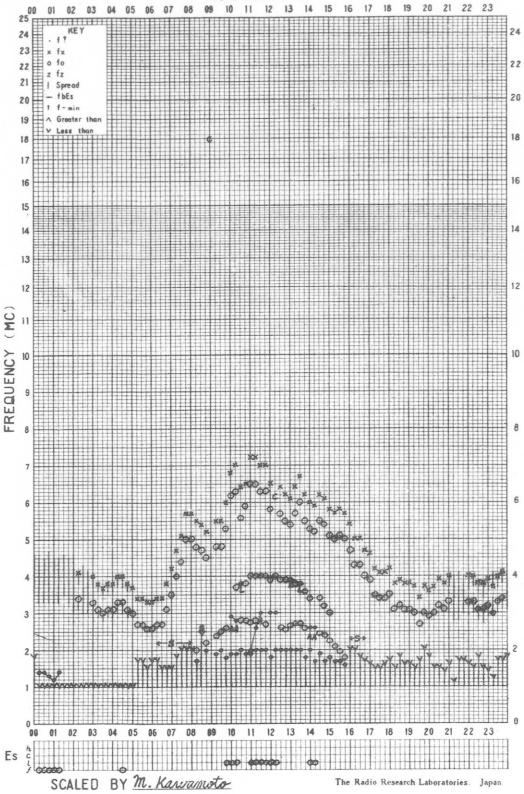

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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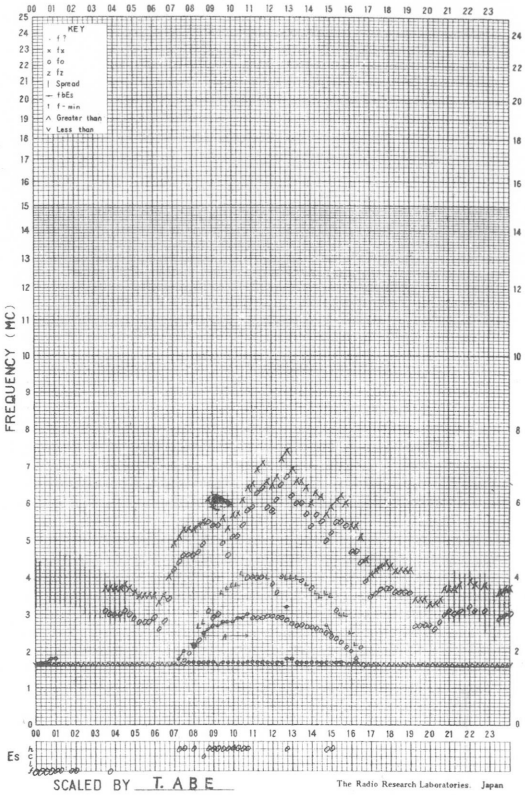

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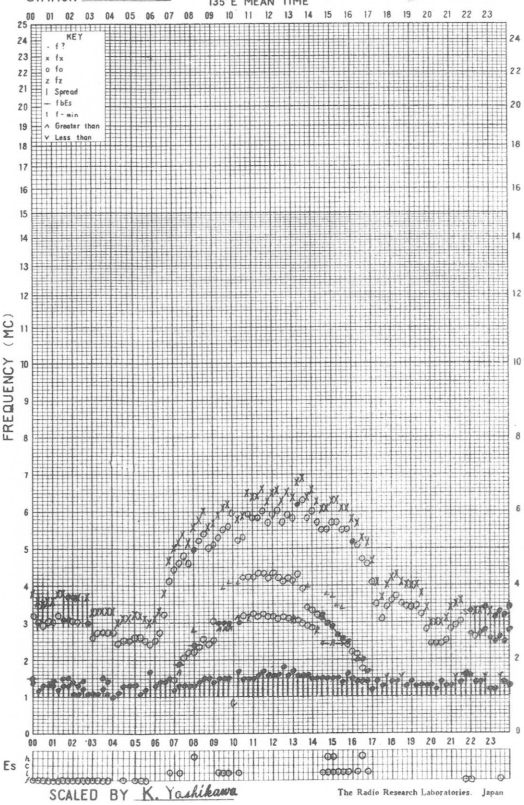

SCALED BY K. Yoshikawa

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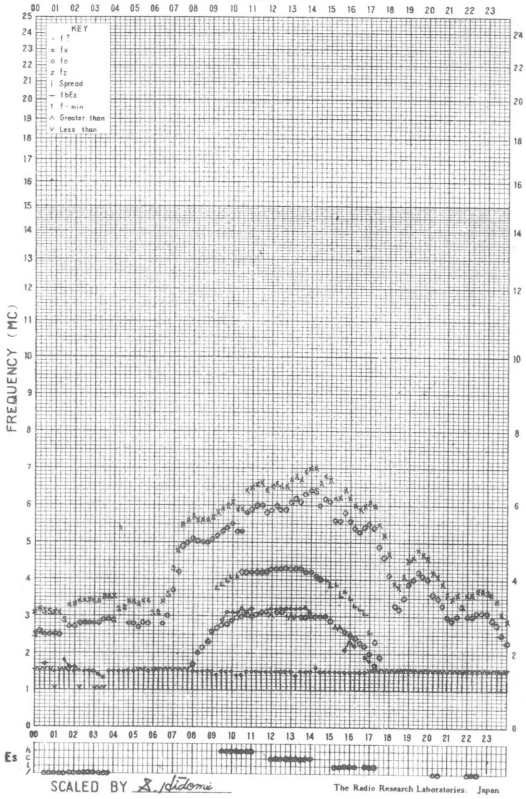

SCALED BY A. Kidomi

The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: January 1966
Observing station: Hiraiso Frequency: 200 Mc/s

	Flux density $10^{-22}Wm^{-2}(c/s)^{-1}$					Variability 0 to 3				
UT Date	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	11	9	(8)	8	9	0	0	(0)	0	0
2	9	12	(12)	-	10	0	0	(0)	-	0
3	9	9	(10)	8	9	0	0	(0)	0	0
4	9	-	-	7	9	0	-	-	0	0
5	8	9	(8)	9	8	1	0	(0)	0	0
6	9	9	(9)	7	9	0	1	(0)	0	0
7	9	9	(8)	9	8	0	0	(0)	0	0
8	9	9	(9)	7	9	0	0	(0)	0	0
9	9	10	(10)	10	9	0	0	(0)	0	0
10	9	9	(8)	9	9	0	0	(0)	0	0
11	9	7	(7)	7	8	0	0	(0)	0	0
12	7	8	(6)	8	7	0	0	(0)	0	0
13	8	8	(7)	-	8	0	1	(0)	-	0
14	8	8	(6)	7	7	0	0	(0)	0	0
15	7	7	(7)	7	7	0	0	(0)	0	0
16	7	7	(7)	6	7	0	0	(0)	0	0
17	6	7	(6)	7	6	0	0	(0)	0	0
18	9	7	(7)	25	8	0	0	(0)	2	0
19	35	12	(9)	8	22	2	1	(0)	1	1
20	8	8	(8)	6	8	0	0	(0)	0	0
21	7	6	(6)	6	6	0	0	(0)	0	0
22	(6)	(5)	(5)	6	6	(0)	(0)	(0)	0	0
23	7	8	(6)	6	7	0	0	(0)	0	0
24	6	7	(7)	7	6	0	0	(0)	1	0
25	8	7	(6)	6	7	1	1	0	0	1
26	(6)	q	q	q	(6)	(0)	0	0	0	(0)
27	q	q	q	q	q	0	0	0	0	0
28	q	q	q	q	q	0	0	0	0	0
29	q	q	q	q	q	0	0	0	0	0
30	q	q	q	q	q	0	0	0	0	0
31	q	q	q	q	q	0	0	0	0	0

Note No observations during the following periods:

2nd 2150- 2400 13th 2150- 2400
4th 0300- 0750 22nd 0100- 0500

" q " means quiet level, while receiver is insensitive.

SOLAR RADIO EMISSION

Flux Density

Month: January 1966
Observing station: Hiraiso Frequency: 500 Mc/s

Flux density 10^{-22} $Wm^{-2}(c/s)^{-1}$

UT	00-03	03-06	06-09	21-24	Day
Date					
1	25	26	(23)	24	25
2	25	23	(23)	24	24
3	24	24	(23)	23	24
4	24	25	(25)	24	24
5	26	27	(25)	25	26
6	25	26	(26)	26	26
7	25	27	(26)	26	26
8	26	25	(25)	26	25
9	26	26	(26)	26	26
10	26	25	(25)	24	26
11	25	26	(26)	25	25
12	26	(26)	-	24	25
13	25	26	(25)	25	25
14	26	26	(25)	25	25
15	25	25	(25)	26	25
16	27	24	(25)	26	25
17	27	26	(26)	27	26
18	26	26	(25)	43	27
19	31	29	(28)	28	30
20	29	29	(27)	26	29
21	(28)	26	(25)	26	26
22	26	25	(25)	26	26
23	26	26	(25)	26	26
24	26	26	(25)	26	26
25	26	26	(23)	24	26
26	25	25	(24)	23	25
27	25	26	(23)	25	25
28	25	24	(24)	25	24
29	24	23	(23)	25	24
30	25	25	(24)	25	25
31	24	24	(24)	24	24

Note No observations during the following periods:

12th 0400- 0750
21st 0000- 0200

Distinctive Events

(single-frequency observations)

Month: January 1966
Observing station: Hiraiso
Normal observing period: 2150 - 0750 (sunrise to sunset)

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density 10^{-22} Wm^{-2}(c/s)$^{-1}$		Remarks
	Mc/s	UT	UT	minutes		peak	mean	
5	200	0334	0334	0.5	C	1010	390	
	500	033?	-	2	C?	-	-	
6	200	0357	0357	0.5	C	600	230	
	500	0357.2	0357.2	1	C	65	6	
13	200	0438	0438.5	3	C	1120	300	
	500	0438.5	0438.5	0.5	C	8	-	
18	200	2300	0019	120	RF	270	50	
	500	2245	2327	127	C	90	40	

interrupted by calibration

Measurement of H.F. Field Strength (Upper Side-band of WWV)

Jan. 1966 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

UT Date	0015	0115	0215	0315	0415	0515	0615	0715	0815	0915	1015	1115	1215	1315	1415	1515	1615	1715	1815	1915	2015	2115	2215	2315
1	<-22s	<-18s	<-24s	<-25s	<-12s	<-14s	< 3s	<-13s	<-16s	<-22s	<-34s	<-34s	<-33s	<-33s	C	C	<-31s	<-34s	<-26s	<-29s	<-30s	<-29s	- 8	-25
2	<-23s	<-23s	<-25s	<-20s	-15	-18	< 2s	< 9s	<-28s	<-33s	<-33s	<-33s	<-31s	<-32s	<-35s	<-35s	<-34s	<-33s	<-35s	<-35s	(-36)s	-31	-11	-13
3	<-10s	-15	<-19s	<-25s	<-13s	< 7s	< 8s	<-14s	<-32s	<-24s	<-31s	<-31s	<-31s	<-32s	<-33s	<-35s	<-33s	<-35s	<-35s	<-30s	<-32s	(-32)s	-12	- 9
4	-18	<-18s	<-22s	<-16s	< 9s	< 1s	< 5s	< 8s	<-13s	<-21s	<-33s	<-20s	<-32s	<-26s	<-27s	<-27s	<-27s	<-29s	<-29s	<-29s	<-29s	<-28s	0	- 8
5	<-27s	<-16s	<-14s	-13	- 8	- 3	<-15s	<-23s	<-30s	<-17s	<-27s	<-19s	<-33s	<-33s	<-35s	<-35s	<-36s	<-32s	-26	-25	<-30s	-15	- 2	- 9
6	<-26s	<-23s	<-16s	<-28s	<-16s	< 2s	< 8s	<-12s	<-27s	<-33s	<-31s	<-17s	<-32s	<-32s	<-32s	<-34s	<-34s	<-34s	<-34s	<-34s	-28	-15	- 4	- 7
7	-21	-18	<-23s	<-30s	<-17s	<-17s	<-16s	<-15s	<-29s	<-21s	<-34s	<-10s	<-32s	<-32s	<-33s	<-33s	<-33s	<-33s	<-34s	<-36s	<-36s	-28	2	- 2
8	- 9	-18	(-20)s	<-25s	<-12s	< 7s	<-10s	<-15s	<-16s	<-14s	<-24s	<-24s	-28	<-34s	<-39s	<-33s	<-33s	<-33s	-30	C	C	-29	- 2	- 9
9	-14	<-19s	<-12s	-15	- 5	<-19s	<-17s	<-13s	<-17s	<-24s	<-32s	<-36s	<-31s	<-31s	<-31s	<-31s	<-29s	<-29s	<-29s	C	C	(-17)c	(- 2)c	(-10)c
10	<-15s	(-28)s c	<-24s	<-23s	< 5s	<-14s	<-19s	<-18s	<-28s	<-27s	<-30s	<-36s	<-35s	<-35s	-20	-22	-27	-22	<-31s	-24	-27	<-27s	- 7	- 8
11	-17	-16	<-16s	<-16s	<-11s	< 9s	< 4s	< 7s	<-23s	<-31s	<-32s	<-36s	<-36s	-24	-27	<-36s	<-37s	<-30s	-27	-26	-24	<-31s	- 2	<-12s
12	C	<-12s	<-12s	<-16s	<-14s	< 3s	<-17s	<-13s	<-16s	<-22s	<-22s	<-17s	<-34s	<-33s	<-29s	<-34s	<-35s	<-35s	<-30s	<-35s	<-30s	-34	- 2	-11
13	<-22s	<-12s	<-20s	<-17s	<-14s	<-17s	<-13s	<-17s	<-33s	<-30s	<-34s	<-19s	<-34s	-29	-29	-18	-32	<-32s	<-33s	<-31s	<-31s	C	C	<-10s
14	<-28s	<-17s	<-17s	<-22s	< 5s	< 0s	<-14s	<-10s	<-26s	<-32s	<-31s	<-30s	<-30s	<-34s	<-34s	<-35s	<-35s	<-36s	-29	-20	-28	-20	- 2	< 2s
15	-17	<-17s	<-15s	(-22)s c	(-11)s c	(-12)s c	(-18)s c	(-17)s c	(-27)s c	(-36)s c	(-36)s c	(-36)s c	<-32s	<-32s	<-35s	<-34s	<-34s	<-34s	<-34s	<-34s	<-34s	-34	- 7	-10
16	-19	<-17s	<-17s	<-22s	(-19)s c	(-17)s c	(- 7)s c	(- 8)s c	(-21)s c	(-30)s c	(-35)s c	(- 8)s c	(-34c	<-35s	<-36s	<-35s	<-35s	<-28s	<-29s	<-29s	<-28s	-29	- 1	- 9
17	C	<-22s	<-20s	<-15s	<-10s	<-13s	< 6s	<-12s	<-17s	<-28s	<-30s	<-27s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-35s	<-36s	<-24s	0	5
18	-10	<-19s	<-12s	-22	-19	<-12s	< 4s	<-10s	<-16s	<-32s	<-33s	< 8s	<-35s	<-31s	<-31s	<-34s	<-34s	<-34s	<-34s	<-34s	<-34s	-34	- 7	(- 6)c
19	C	<-29s	<-19s	<-23s	< 4s	<-14s	<-18s	<-21s	<-21s	<-27s	-26	< 9s	<-33s	<-35s	<-35s	<-36s	<-30s	<-33s	-27	-21	-30	-13	9	- 9
20	-19	<-20s	<-20s	<-36s	< 4s	< 6s	< 8s	<-16s	<-15s	<-23s	<-25s	<-10s	<-36s	<-36s	<-35s	<-35s	<-34s	<-38s	<-37s	<-26s	<-28s	<-40s	- 4	-20
21	<-35s	<-20s	(-18)s c	<-29s	< 8s	<-12s	<-11s	< 7s	< 6s	<-12s	<-23s	<-10s	<-13s	<-26s	<-27s	<-28s	<-28s	<-21s	<-19s	<-28s	<-32s	-26	-17	7
22	-13	-13	<-22s	-15	< 6s	< 9s	<-15s	<-14s	<-16s	<-13s	<-18s	<-16s	<-34s	<-34s	<-30s	<-31s	<-31s	<-30s	<-27s	<-31s	<-35s	-24	-16	- 5
23	<-13s	<-20s	<-18s	<-30s	<-16s	<-14s	<-16s	<-17s	<-18s	<-30s	<-23s	<-10s	<-28s	<-33s	<-32s	<-34s	<-30s	<-30s	<-32s	<-36s	<-30s	-31	-15	- 9
24	<-21s	<-18s	<-33s	<-30s	<-11s	<-18s	<-13s	<-16s	<-12s	<-34s	<-22s	<-12s	<-27s	<-28s	<-28s	C	<-33s	C	C	C	(-34)s	C	(-11)c	-11
25	(-26)s c	<-27c	- 8	<-14s	<-10s	<-14s	<-18s	<-17s	<-15s	<-30s	<-28s	<-29s	<-29s	<-33s	<-36s	<-33s	<-33s	<-33s	<-33s	<-33s	<-32s	-28	-10	7
26	-12	- 8	-18	<-30s	- 8	- 2	- 5	<-14s	<-19s	<-27s	<-24s	<-30s	<-32s	<-34s	<-34s	<-34s	<-34s	<-33s	<-31s	<-33s	<-20s	-22	- 7	-13
27	-29	<-20s	-24	<-30s	<-14s	<-14s	<-18s	<-18s	<-23s	<-17s	(-20)s c	<-18s	<-27s	<-27s	<-27s	<-27s	<-27s	<-27s	<-37s	<-37s	<-29s	<-28s	- 3	- 8
28	<-23s	<-21s	<-26s	<-26s	<-14s	<-10s	<-12s	<-15s	<-26s	<-28s	<-32s	<-18s	<-31s	<-32s	C	C	C	C	C	C	C	C	-10	
29	-16	<-17s	-26	-19	<-16s	<-14s	<-12s	<-15s	<-18s	<-35s	<-35s	<-35s	<-32s	<-35s	<-37s	<-34s	<-34s	<-34s	<-27s	<-30s	<-30s	(-29)s	- 8	C
30	C	C	C	C	C	C	<-31s	<-12s	<-22s	<-19s	<-20s	<-19s	<-27s	<-27s	<-27s	<-28s	<-31s	<-31s	<-31s	<-30s	<-30s	<-28s	- 5	- 3
31	-13	<-24s	<-11s	<-29s	<-11s	< 1s	S	<-12s	<-18s	<-29s	<-30s	<-15s	<-29s	<-29s	<-29s	<-29s	<-29s	<-33s	<-33s	<-33s	<-32s	-23	- 3	2
Median	(-20)s	(-18)s	(-19)s	(-23)s	(-11)s	(-12)s	(-13)s	(-14)s	(-19)s	(-27)s	(-30)s	(-19)s	(-32)s	(-32)s	(-32)s	(-34)s	(-33)s	(-33)s	(-31)s	(-31)s	(-30)s	(-29)s	- 4	(- 9)s
Med. Count	27	30	30	30	30	30	30	31	31	31	31	31	31	31	29	28	30	29	29	27	28	28	29	30
Upper decile	<-10s	<-12s	<-12s	<-15s	< 4s	< 0s	< 4s	< 8s	<-13s	<-14s	<-20s	< 9s	<-27s	<-26s	<-27s	<-27s	<-27s	<-27s	<-26s	-24	<-27s	-15	0	2
Lower decile	<-28s	<-27s	<-26s	<-30s	<-17s	<-18s	<-18s	<-18s	<-30s	<-34s	<-35s	<-36s	<-35s	<-35s	<-36s	<-35s	<-35s	<-35s	<-35s	<-36s	(-36)s	<-34s	-15	<-13s

Measurement of H.F. Field Strength (Upper Side-band of WWVH)

Jan. 1966 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

UT	0045	0145	0245	0345	0445	0545	0645	0745	0845	0945	1045	1145	1245	1345	1445	1545	1645	1745	1845	1945	2045	2145	2245	2345
Date																								
1	1	5	9	12	- 3	< 6s	< 3s	<10s	<25s	<34s	<34s	<34s	<33s	C	C	<31s	<34s	<34s	<28s	<30s	- 8	5	5	(-14)s
2	10	- 0	4	15	11	< 2s	< 2s	< 9s	<28s	<33s	<33s	<33s	<33s	<36s	<36s	<35s	<33s	<33s	<35s	-28	- 6	- 1	7	5
3	7	5	16	13	12	-11	<12s	<16s	<35s	<27s	<31s	<32s	<31s	<28s	<34s	<34s	<35s	<35s	<29s	-24	- 6	8	5	6
4	7	7	12	11	14	< 2s	(- 7)s	<12s	<18s	<21s	<32s	<23s	<26s	<26s	<27s	<27s	<29s	<29s	<29s	-28	- 5	- 3	4	6
5	8	11	12	21	22	< 2s	<14s	<14s	<29s	<16s	<27s	<20s	<34s	<34s	<35s	<35s	<35s	<30s	<30s	<29s	-16	2	6	9
6	7	9	9	26	< 7s	<17s	< 4s	< 8s	<25s	<32s	<31s	<19s	<31s	<33s	<34s	<34s	<34s	<34s	<34s	<34s	<24s	6	3	- 1
7	6	8	5	16	12	<12s	<11s	<11s	<27s	<34s	<29s	<16s	<32s	<32s	<33s	<33s	<33s	<33s	<34s	<36s	- 8	4	- 3	6
8	10	11	11	5	- 8	- 2	<10s	< 4s	<27s	<22s	<15s	<32s	<34s	<34s	<30s	<33s	<33s	<32s	C	C	C	- 0	1	8
9	9	12	11	5	22	<16s	<10s	<12s	<12s	<25s	C	<35s	<31s	<31s	<31s	<31s	<29s	<29s	<29s	C	(6)c	(8)c	(-20)c	(13)c
10	3	11	13	14	11	- 9	-12	- 6	<28s	<21s	<26s	<35s	<35s	<35s	<35s	<35s	<34s	<35s	<31s	<32s	-25	3	3	5
11	4	9	7	12	(12)c	<10s	< 4s	< 8s	<32s	<31s	<28s	<32s	<32s	<36s	<36s	<36s	<30s	(-31)s	-23	-28	-10	- 0	3	8
12	C	7	8	7	10	< 1s	< 8s	<19s	<19s	<20s	<12s	<23s	<30s	<34s	<35s	<35s	<35s	<30s	<27s	<32s	- 2	4	3	2
13	5	7	9	13	6	4	- 5	<10s	<28s	<30s	<33s	<23s	<35s	<34s	<34s	<34s	<32s	<32s	-30	<31s	<31s	C	C	9
14	C	2	11	10	12	- 6	- 6	< 6s	<26s	<29s	<33s	<28s	<33s	<35s	<34s	<35s	<35s	<35s	<33s	<29s	- 3	7	2	6
15	6	7	10	(15)c	(8)c	(-13)s	(-15)s	(-18)s	(-36)s	(-36)s	(-36)s	(-17)s	<32s	<32s	<35s	<34s	<34s	<34s	<34s	-33	- 8	4	6	9
16	3	4	10	(9)c	(19)c	(5)c	(- 4)s	(- 5)s	(-23)s	(-30)s	(-34)s	(-11)s	(-28)s	<36s	<36s	<35s	<31s	<36s	<30s	<29s	-17	- 1	2	6
17	2	5	5	6	14	< 3s	< 1s	< 9s	<25s	<34s	<34s	<27s	<35s	<35s	<35s	<35s	<35s	<35s	<35s	<35s	- 9	8	- 1	5
18	4	8	7	6	14	1	- 3	< 9s	<29s	<32s	-30	<16s	<29s	<31s	<32s	<34s	<34s	<34s	<34s	<34s	-13	3	6	(- 1)s
19	-13	- 1	8	16	17	- 6	- 1	3	-18	-12	(-27)s	<20s	<34s	<34s	<36s	<36s	<35s	<36s	<36s	<37s	- 6	4	7	7
20	- 5	6	- 2	4	- 2	< 8s	<18s	- 5	-16	-19	< 8s	<20s	<36s	<36s	<35s	<23s	<34s	<38s	<36s	-29	- 4	- 0	4	4
21	3	(3)c	C	15	17	<11s	<11s	< 3s	<11s	<14s	<15s	< 6s	<29s	<21s	<28s	<28s	<21s	<20s	<22s	-24	2	2	8	3
22	- 0	8	12	14	19	13	- 9	<10s	<14s	< 2s	< 8s	<18s	<22s	<29s	<30s	<31s	<31s	<28s	<31s	<38s	-13	6	8	3
23	5	7	10	8	4	<15s	<13s	<11s	<19s	<24s	<19s	<17s	<33s	<33s	<31s	<35s	<32s	<34s	<33s	C	-14	2	7	- 1
24	5	8	5	15	14	- 1	< 3s	< 2s	<10s	<29s	<33s	<11s	<29s	<28s	<29s	C	<34s	C	C	C	- 6	C	6	C
25	6	(6)c	12	20	3	-11	C	<14s	-18	-19	<31s	<33s	<31s	<33s	<35s	<33s	<33s	<33s	<33s	<33s	<33s	7	7	1
26	C	10	9	13	13	2	-12	<16s	<30s	<25s	<21s	<31s	<33s	<34s	<34s	<34s	<33s	<32s	<32s	(-32)s	-15	3	5	5
27	0	4	13	7	4	(-17)s	-17	<17s	<17s	<28s	<27s	<18s	<27s	<27s	<27s	<27s	<27s	<27s	<37s	<28s	-11	5	- 0	- 0
28	6	3	C	< 2s	16	<13s	<12s	<23s	<26s	<31s	<32s	<26s	<31s	C	C	C	C	C	C	C	C	C	- 6	- 8
29	- 6	- 2	1	3	9	0	<13s	<17s	<30s	<35s	<35s	<35s	<32s	<35s	<37s	<34s	<34s	<34s	<30s	<30s	-12	- 1	- 4	C
30	C	C	C	C	C	<16s	< 6s	<13s	<23s	<22s	<31s	<31s	<27s	<27s	<27s	<28s	<31s	<31s	<30s	<30s	-12	2	0	8
31	2	7	7	7	20	< 6s	< 8s	<10s	<28s	<30s	<10s	<30s	<29s	<29s	<29s	<29s	<28s	<33s	<33s	<32s	2	5	6	4
Median	4	7	9	12	12	(- 6)s	(- 9)s	(-10)s	(-25)s	(-28)s	(-31)s	(-23)s	(-32)s	(-33)s	(-34)s	(-34)s	(-33)s	(-33)s	(-32)s	(-31)s	- 9	4	4	5
Med. Count	27	30	28	30	30	31	30	31	31	31	30	31	31	29	29	29	30	29	28	26	29	27	29	28
Upper decile	5	11	13	20	20	4	< 2s	< 3s	<12s	<14s	<10s	<11s	<27s	<27s	<27s	<27s	<28s	<28s	<27s	-28	2	8	7	9
Lower decile	- 5	- 0	4	4	- 3	<16s	<15s	<18s	<32s	<34s	<34s	<35s	<35s	<36s	<36s	<35s	<35s	<36s	<36s	<36s	<25s	- 1	- 4	< 1s

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Jan. 1966	Whole Day Index	H B 06 12 18 / 12 18 24	W W V 00 06 12 18 / 06 12 18 24	S F 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	4o	4 (4 4)	- - - 3	4 4 5 4	4 4 - 4	N N N N			
2	4o	4 4 4	- - - 4	4 3 4 4	4 (4) - 4	N N N N			
3	4+	5 4 4	- - - (4)	5 4 4 4	4 4 - 4	N N N N			
4	4o	4 4 4	- - - 4	(4) 4 4 (4)	4 4 - 4	N N N N			
5	4o	4 4 4	- - - 4	4 4 4 4	4 4 - 4	N N N N			
6	4-	3 4 C	- - - 4	3 4 3 4	4 4 - 4	N N N N			
7	4o	3 (3) 4	- - - 5	(4) 4 4 (4)	4 4 - 4	N N N N			
8	4o	4 4 4	- - - 4	4 4 4 4	4 4 - 4	N N N N			
9	4o	5 4 4	- - - 4	4 4 4 4	4 4 - 4	N N N N			
10	4o	4 4 4	- - (4) 4	4 4 4 4	4 4 - 4	N N N N			
(11)	4-	4 4 4	- - - 4	3 4 3 4	4 3 - 4	N N N N			
(12)	4o	4 4 4	- - - 4	4 4 4 4	4 4 - 4	N N N N			
(13)	4o	4 4 4	- - (4) 4	4 4 4 4	4 4 - (4)	N N N N			
14	4+	4 4 5	- - - 5	4 4 4 4	4 4 - 4	N N N N			
15	4o	4 4 5	- - - 4	4 4 4 4	4 (4) - 4	N N N N			
16	4o	3 4 4	- - - 4	4 4 4 4	4 4 - 4	N N N N			
17	4o	4 4 4	- - - 5	4 4 4 4	4 4 - 4	N N N N			
18	4o	C 4 4	- - - 4	4 4 4 4	4 4 - 4	N N N N			
19	4o	(4) 4 4	- - - 4	4 4 4 5	4 5 - 4	N N N N			
20	4+	5 4 C	- - - 4	5 4 4 5	4 5 - 4	N N N N	0204	---	80γ
21	4o	4 4 (4)	- - - 5	4 4 4 4	4 4 - 4	N N N N	---	---	
22	4o	4 4 3	- - - 4	4 4 4 4	4 4 - 4	N N N N	---	24xx	
23	4o	5 4 3	- - - 4	4 4 4 4	4 4 - 4	N N N N			
24	4o	(4) 4 (4)	- - - 4	4 4 4 4	4 4 - 4	N N N N			
25	4o	(4) 4 4	- - - 4	4 4 4 4	4 4 - 4	N N N N			
26	4o	C 4 4	(4) - - 4	4 4 4 3	4 4 - 4	N N N N			
27	4-	C 4 3	- - - 4	3 4 4 3	4 3 - 4	N U U U			
28	4o	C 4 4	- - - 5	3 4 4 3	4 4 - (4)	U U U U			
29	4-	C 4 3	- - - (4)	3 4 4 3	(4 4) - (4)	U U U U			
30	4o	4 4 4	- - - 4	C 4 4 3	C C - 4	U N N N			
31	4+	(4) 4 4	- - - 5	5 4 4 4	4 4 - 4	N N N N			

IQSY GEOALERT and ADALERT (Western Pacific Region)

* = MAGSTORM

o = MAGCALME

Δ = COSMIC EVENT

( ) = Regular World Day

\- = impossible to evaluate

( ) = inaccurate

C = artificial accident

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Jan.	S W F									Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
1966	WS	SF	HA	TO	HB	SH							
18		35	27	-	-		22.58	67	Slow	2+	x	x	
20		15	11	-			00.23	23	S	1	x	x	

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